



AGRICULTURAL PRODUCTION 36



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Agricultural Production 36

Student Workbook

1992

ALBERTA EDUCATION CATALOGUING IN PUBLICATION DATA

Alberta. Curriculum Branch.

Agricultural production 36 : student workbook.

ISBN 0-7732-0504-7

1. Agriculture — Study and teaching (Secondary) — Alberta.
2. Agricultural industries — Alberta — Vocational guidance.
 - I. Title II. Integrated Occupational Program.

S535.C2.A333 1992

630.71

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ACKNOWLEDGEMENTS

Alberta Education acknowledges with appreciation the contributions of the following individuals and school jurisdictions to the development and validation of this document.

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In addition, Alberta Education acknowledges with appreciation the contributions of educators and representatives of business and industry to the development of this document.

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Read and complete the "Student Safety Pledge Form" below.

STUDENT SAFETY PLEDGE FORM

_____, who is enrolled in Agricultural Production 36, will, as a part of the learning experience, operate equipment and tools, providing written parental/guardian permission is given.* Each student will be given proper instruction, both in the use of the equipment and tools and in correct safety procedures, before being allowed to work alone. Because the student must assume responsibility for following safety practices, we ask that he or she subscribe to the following safety pledge.

1. I WILL FOLLOW ALL SAFETY RULES.
2. I WILL NOT ASK PERMISSION TO USE AN ITEM UNLESS I HAVE BEEN INSTRUCTED IN ITS USE.
3. I WILL REPORT ANY ACCIDENT OR INJURY TO THE TEACHER/SUPERVISOR.

DATE _____ STUDENT'S SIGNATURE _____

I hereby give my consent to allow my son or daughter to operate all equipment and tools necessary to carry out the tasks in this course.

DATE _____ PARENT'S/GUARDIAN'S SIGNATURE* _____

Parents/guardians are cordially invited to visit and arrange to view any tasks performed by the students.

*Parent/guardian consent is necessary only if the student is a minor.

SAFETY IS EVERYONE'S BUSINESS

The proper and safe use of equipment, tools and supplies protects you, others and property in both the school lab and in the workplace.

Job sheets in this workbook contain safety information (e.g., safety rules, practices, cautions, protective clothing/gear) where appropriate.

SAFETY PRACTICES AND PROCEDURES MUST BE FOLLOWED

Note: Safety practices may vary in different situations. **Always follow your teacher's/supervisor's instructions.**

INTRODUCTION

What abilities (knowledge, skills, attitudes) will you need to acquire in order to get and to keep an entry-level job in agricultural production?

Having successfully completed Agricultural Production 26, you could probably make lists of the things you should know, the jobs you should be able to do, and the attitudes considered appropriate in the workplace. In fact, this is a good starting point for this course, Agricultural Production 36. The following activities will enable you to evaluate your present abilities and help to guide your learning during the course.

STUDENT ACTIVITIES

1. Either on your own, or through brainstorming, answer the following questions:
 - a. What knowledge, skills and attitudes are required to get and keep a job in agricultural production?
 - b. List your answers in the following chart. Be specific. Different areas of the business/industry may require different abilities.

Area of Business/Industry	Knowledge (What I should know)	Skills (What I should be able to do)	Attitudes (How I feel about myself, others and the job)

- c. If you worked alone, compare your list with those prepared by classmates. If necessary, make changes to your list.
2. a. Check (✓) each of the abilities, listed in the chart, that you think you now possess. That is, do you now have the knowledge, skills and positive attitudes needed to obtain and keep a job?
- b. How do you intend to acquire the abilities not presently checked?

COURSE OUTLINE

During Agricultural Production 36 you will be able to develop your abilities even further. At the end of the course, you should be able to:

- have a clear idea of your career options
- obtain entry-level employment in a related job
- recognize the need for further education and training
- identify opportunities for further education and training
- identify the knowledge, skills and attitudes relevant to agricultural production careers
- demonstrate the skills required of personnel involved in agricultural production.

The job sheets contained in this student workbook are examples of jobs you may perform as an entry-level employee. Because the types of jobs in this career field are many and varied, your teacher or supervisor may provide additional or alternative job sheets.

Evaluate your own performance on each job, and encourage classmates to criticize your work. For example: Is it done well? Does it need a little more work?

Appendix 1: "Agricultural Production 36 Profile" provides an outline of the abilities you should have at the end of this course.

STUDENT ACTIVITIES

1. As you perform each job, ask yourself the following questions:
 - Is the work area properly arranged to do the job?
 - Are needed equipment, tools and supplies available and close at hand?
 - Is my personal hygiene, appearance and attitude appropriate for the job?
 - Are proper procedures and safety practices being followed?
2. When you complete each job, ask yourself these questions:
 - Am I satisfied with the completed job? Why or why not?
 - Could I have improved the finished product or service? How?
 - Is the teacher/supervisor/customer satisfied with the finished product or service? Why or why not?
 - With the abilities I now have, what jobs could I get in the community?
 - What other abilities do I need to acquire in order to apply for the type of job I want? How can I acquire these abilities?
3. Read Chapters 1 and 2, *Working: Today and Tomorrow*, Canadian Edition, 1990. Discuss and answer the following questions:
 - Will the job market increase or decrease for people in the agricultural production industry during the next five years? Give reasons for your answer.

- What local, provincial, national or international factors may cause the job market in this career cluster to change?

Local _____

Provincial _____

National _____

International _____

JOBS AND CAREERS

How does a job differ from a career? You probably have an answer to this question by now. However, to review the difference, your textbook, *Working: Today and Tomorrow*, Canadian Edition, 1990, contains the following descriptions:

A job can be short-term (or long-term) employment; work you do because you need the money or because it's available.

A career is your life's work . . .

A career is an occupation that you plan for, train for, and intend to keep for a long time.

CAREER CLUSTERS

A career cluster is a group of occupations that are similar in nature. This course, Agricultural Production 36, is a member of the agribusiness career cluster.

Many of the abilities developed in one career cluster may be used in jobs and careers in other career clusters. For example:

- the ability to keyboard is useful in every career cluster, not just in the business and office operations cluster
- the ability to use hand and power tools properly is useful in agribusiness, construction and fabrication, creative arts, natural resources, tourism and hospitality, and the transportation career clusters
- the ability to communicate effectively, offer assistance and service, and relate to others is important in each career cluster.

STUDENT ACTIVITIES

1. Read Chapters 3 and 7, *Working: Today and Tomorrow*, Canadian Edition, 1990.

2. Discuss and answer the following questions:

- a. Will there be a need for me to change jobs during the next five years? Give reasons for your answer.

- b. If I change jobs during the next five years:

- will I still be working within the same career cluster? Why or why not?

- will I need to upgrade my knowledge and skills and change my attitudes? Why or why not?

- c. Where could I go to obtain help with my job and career choices:

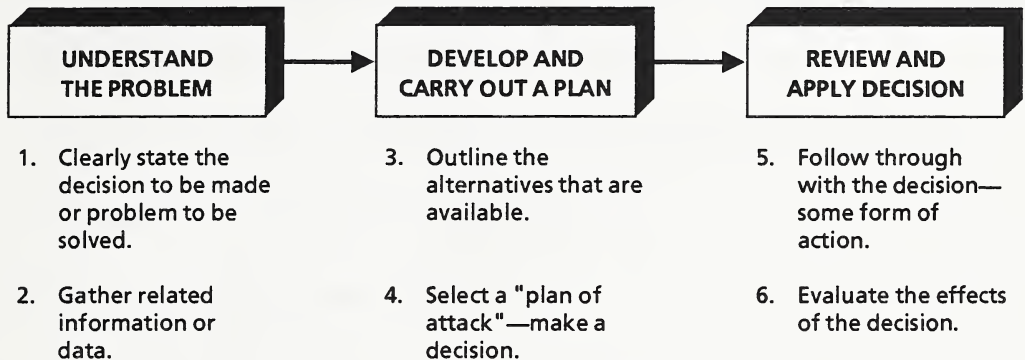
- in the school? _____

- in the community? _____

- d. What type of help is available? For example, CHOICES (a computerized career assistance program), pamphlets and booklets, resource people, occupational catalogues and occupational dictionaries.

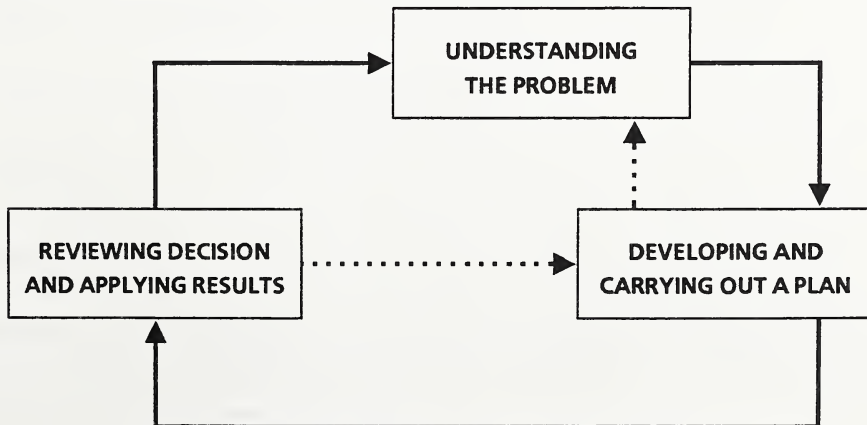
CAREER PLANNING

Career planning involves a process of making decisions. While some decisions are simple, others involve a more complex process. The six-step decision-making model used in this and your other IOP courses is shown below.



A model is a useful aid. It helps clarify the decision-making process by providing a plan or procedure for action.

Decision-making models are also used to solve problems. However, solving one problem or making a decision often leads to the need to solve other problems and make other decisions. The process, therefore, can be seen as a series of three steps, each of which affects the others. The relationship among the three parts of this process is shown in the following model.



STUDENT ACTIVITIES

1. Read Chapter 4, *Working: Today and Tomorrow*, Canadian Edition, 1990.
2. Using the decision-making process described in the textbook or the one in this workbook, identify the process that you have used or intend to use to plan your career. You may use a model to help describe your plan.

JOB SEARCH

Searching for a job is a process. If a job is part of your career plan, rather than a part-time or summer activity, it is even more important to use the proper steps in the job search process. These steps include:

1. Listing your strengths, interests, abilities, skills and work goals.
2. Clearly identifying the requirements of each job related to the career cluster.
3. Matching your strengths, interests, abilities and skills to work goals and job requirements.
4. Selecting the career cluster and then the related job.
5. Preparing your résumé in proper format.
6. Identifying job opportunities:
 - associations
 - job boards
 - making personal contacts and enquiries
 - telephone enquiries
 - cold calls
 - newspapers.
7. Preparing letters of application.
8. Follow up to applications.
9. Preparing for and participating in job interviews.
10. Obtaining a job.
11. Retaining the job.

The following job sheets provide the opportunity to update information, letters and résumés previously collected and prepared, and to use the new information in a real-life job search process; a job search that is related to your career plan.

JOB SHEET 1

IDENTIFYING JOB REQUIREMENTS

EQUIPMENT, TOOLS AND SUPPLIES

- Student workbook
- Pen or pencil

PROCEDURE

Interview a person occupied in a job that interests you, and obtain and record answers to the following questions.

Name of person interviewed: _____ Date: _____ Occupation: _____

1. What are the entry-level requirements in this occupation?

2. What technical knowledge is required?

3. What practical skills are required?

4. a. Is a driver's licence necessary? ☐ Yes ☐ No

b. If "yes" to 4a, is a defensive driving certificate required? ☐ Yes ☐ No

5. Is there any heavy lifting or other physical job requirements?

6. Would fear of heights or enclosed spaces affect employment opportunities?

7. Is shift work a requirement? If so, what are the typical shifts?

8. Are there any other special entry-level requirements of which a prospective employee should be aware? Please specify.

9. Summarize the requirements of this job.

10. Do you have the abilities needed to do this job? List areas (knowledge, skills, attitudes) that need further development.

Knowledge	Skills	Attitudes

JOB SHEET 2

PREPARING A RÉSUMÉ

EQUIPMENT, TOOLS AND SUPPLIES

- Pen
- Paper
- Keyboard and printer (word processor or typewriter)

PROCEDURE

1. Before starting to write a résumé, ask yourself what qualities, abilities and work experience information employers look for in entry-level employees in this career area.
2. Write each idea as you think of it.
3. Arrange the information in a logical order, using either of the following two sample formats: chronological résumé, biographical résumé.

SAMPLE CHRONOLOGICAL RÉSUMÉ

Any Student
1234 – 56 Street
Anytown, Alberta
T1A 2B3
Telephone: 123-4567

Position Desired: _____

Education: Currently completing Grade 12 at _____
School, Anytown, Alberta
Grades 8 and 9, _____ School, Anytown, Alberta
Will graduate 19 ____ with a Certificate of Achievement.

Work Experience: January 1986 to present -- sales assistant, XYZ Seed Sales, Anytown, Alberta (part-time/weekends)
September 19 ____ to June 19 ____ -- cashier, Family Restaurant, Anytown, Alberta (evening employment)
July to August 19 ____ -- lifeguard, City Pool, Anytown, Alberta (summer employment)

Volunteer Activities: Hospital assistant
Playground assistant

Hobbies and Interests: Swimming, diving, motocross racing

References: Available upon request

SAMPLE BIOGRAPHICAL RÉSUMÉ

Any Student
1234 – 56 Street
Anytown, Alberta
T1A 2B3
Telephone: 123-4567

Employment Objective: To obtain a job in which I will be able to make good use of my education, training and desire to achieve success as _____.

Education: I went to primary school in Winnipeg, Manitoba, and then moved with my family to Anytown, Alberta. I attended _____ Junior High School and am now completing a program at _____ Senior High School. I will graduate this year with a Certificate of Achievement. Courses taken relating to my career goals include:

Work Experience: I have been working part-time as a sales assistant at the XYZ Seed Sales. From January 19 ____ The work involved providing customer service, sales, handling cash and to Present making change. In the evenings I have been cashiering at the Family Restaurant.

During my last two summer holidays, I have worked as a part-time lifeguard at the City Pool. This has provided me with the opportunity to develop additional skills in first aid and human relations.

Other Activities: My hobbies include swimming, diving and motocross racing. When requested, I provide volunteer services at the local hospital and children's playground.

References: I will be pleased to provide references upon request.

4. Which type of résumé do you prefer? Why?

5. Which type of résumé do you think an employer prefers? Why?

6. Prepare another résumé using the format not previously used.

7. Using the following chart as a guide, evaluate your résumés.

Scale: 4 = Excellent 3 = Very Good 2 = Good 1 = Not Acceptable

Preparing a Résumé	Self-evaluation		Peer Evaluation		Teacher/ Supervisor Evaluation	
	Résumé 1	Résumé 2	Résumé 1	Résumé 2	Résumé 1	Résumé 2
Was able to determine and write down own strengths, interests, abilities, skills and work experience.						
Organized information in logical order for a résumé.						
Keyboarded a clean copy of résumé in chronological and biographical format.						
Indicated a preference for one of the formats.						

JOB SHEET 3

COMPOSING A LETTER OF APPLICATION

EQUIPMENT, TOOLS AND SUPPLIES

- Pen
- Paper
- Keyboard and printer (word processor or typewriter)

PROCEDURE

Note 1: The body of the letter should consist of approximately three paragraphs.

Paragraph 1

- introduce yourself
- state why you are writing

Paragraph 2

- state briefly what you have to offer the company (knowledge, skills)

Paragraph 3

- request an interview
- give telephone number(s) of where you can be reached

Note 2: Make a minimum of three copies of the "Composing a Letter of Application" evaluation chart on page 19. Give one copy to your teacher/supervisor and one to a classmate. Keep a copy for yourself. Using the chart as a guide, have each letter evaluated.

A. Non-advertised, Non-specific Job

1. Compose a letter of application for a job. The letter should be adaptable. That is, the same letter, with just a change of address, may be used to find out whether or not a number of different companies need someone with your abilities.

The sample letter on the following page may be used as a guide.

2. See "Note 2", and evaluate "Letter A".

SAMPLE "LETTER A" OF APPLICATION

1234 – 56 Street
Anytown, Alberta
T1A 2B3
June 1, 19 ____

M ____ J. Stand
Personnel Officer
Rocket Fertilizer Company
5678 – 90 Avenue
Anytown, Alberta
T2R 3Z4

Dear M ____ Stand:

I am interested in a position as _____ with the Rocket Fertilizer Company.

Enclosed is a résumé outlining my education and experience. As indicated, I have skills which, I believe, would be beneficial to your organization.

I would like to discuss with you the possibility of employment with your company and will call you in a few days to see if an interview can be arranged. I will be pleased to provide references and any further information you may require. In the meantime, if you have any questions, please telephone _____.

Yours truly,

A. Student

B. Non-advertised Specific Job

1. Compose a letter of application for a job that you know may be available with a company.

The following sample letter may be used as a guide.

2. See "Note 2", and evaluate "Letter B".

SAMPLE "LETTER B" OF APPLICATION

1234 – 56 Street
Anytown, Alberta
T1A 2B3
June 1, 19 ____

M ____ D. Band
XYZ Seed Supply
66 Broadway Avenue
Anytown, Alberta
T0T 5L4

Dear M ____ Band:

I would be interested in discussing with you the possibility of employment as a sales assistant with XYZ Seed Supply.

When I graduate, 19 ____, I will have a Certificate of Achievement with credits in agricultural production. I have also worked part-time in a feed lot and, during summer holidays, on local farms.

I believe my education and experience may qualify me for a suitable position with your company.

I would be pleased to meet you, at your convenience, to discuss possible employment, and to provide additional information you may require. You may contact me at the above address, or by telephoning _____ (after 4 p.m.).

Yours truly,

A. Student

C. Advertised Jobs

1. Scan job advertisements in the local newspaper and identify those that interest you and that match your abilities.
2. Compose a letter of application, citing the advertisement to each advertiser.

The following sample letter may be used as a guide.

3. See "Note 2", and evaluate "Letter C".

SAMPLE "LETTER C" OF APPLICATION

1234 – 56 Street
Anytown, Alberta
T1A 2B3
June 1, 19 ____

M __ A. Trann
ABC Seed Sales
21 Sunnyside Street
Anytown, Alberta
T3G 4L5

Dear M __ Trann:

I am writing in reply to your advertisement for a _____ in
the *Daily News* of May 29, 19 ____.

As you can see from the attached résumé, my education, training and past work experience correspond to the qualifications you are seeking. Your advertisement noted that you want someone with initiative and a sense of responsibility. I believe I have both of these qualities. My references, available upon request, will confirm my work ethics and skills.

I can be reached at the above address, or by telephone after 4:00 p.m. at _____.

Yours truly,

A. Student

Scale: 4 = Excellent 3 = Very Good 2 = Good 1 = Not Acceptable

Composing a Letter of Application	"Letter A"				"Letter B"				"Letter C"			
	4	3	2	1	4	3	2	1	4	3	2	1
Composed an appropriate letter of application.												
Used correct format.												
Used proper sentence structure.												
Paragraph 1 introduced yourself and stated why you were writing.												
Paragraph 2 briefly outlined what you have to offer the company.												
Paragraph 3 requested an interview and gave a telephone number where you could be reached.												
Signed the letter.												
Cleaned up the work area.												

DISCUSSION TOPICS

1. Should a résumé always be sent with a letter of application?

2. Should a letter of application be handwritten or keyboarded? Discuss the advantages/disadvantages of each method.

JOB SHEET 4

COMPLETING A JOB APPLICATION FORM

EQUIPMENT, TOOLS AND SUPPLIES

- Pen
- Paper
- Keyboard and printer (word processor or typewriter)
- Assorted application forms

PROCEDURE

Note: Before completing any application form, identify inquiries as to their appropriateness. (See "Pre-employment Inquiries", page 24.)

1. Complete the two sample application forms that follow:
 - "Sample Job Application Form" is a short form
 - "Sample Detailed Application for Employment Form" is a longer form.
2. Use these forms for practice, and then obtain application forms from companies for which you would like to work.



SAMPLE JOB APPLICATION FORM

Complete all blanks. Use CAPITAL LETTERS.

General Information

Name in full _____
Last First Middle

Address _____ Telephone _____
Number and Street City Province Postal Code

Position you are applying for? _____

When can you start work? _____

Education – Most recent school first.

Name of School Attended Dates of Attendance City

Employment Background – Most recent job first.

Dates Name and Address of Employer Job Title and Duties

General

What machines or equipment can you operate? _____

What additional experience or training have you had? _____

References – Other than relatives.

Name Occupation Firm Name and Address Telephone

To the best of my knowledge, the above information is truthful and accurate.

Signature _____

Adapted from *The Easy-to-Read Career Planning Guide*, copyright 1986 by Alberta Career Development and Employment. Reprinted by permission.

SAMPLE DETAILED APPLICATION FOR EMPLOYMENT FORM

This application form is intended to be a sample only; it complies with the *Individual's Rights Protection Act*. It is not intended to reflect all of the information that an employer might need. It is recognized that certain employers may, for various reasons, require particular job-related information about an individual or his or her background.

(PLEASE PRINT CLEARLY)

Position applied for: _____

Name: _____ Telephone: _____ (residence)

Address: _____ (business)

(Postal Code)

Are you 18 years of age or over? _____ Yes _____ No

Are you legally entitled to work in Canada? _____ Yes _____ No

Are you willing to work in a non-smoking environment? _____ Yes _____ No

EDUCATION

School	Course of Study (List all major subjects)	Number of Years Completed	Degree or Diploma Obtained
High School			
College			
Other Institutions			

List any additional education or training of which you would like us to be aware.

EMPLOYMENT HISTORY
(Begin with Most Recent)

Company Name and Address	Position Held	From	To	Supervisor's Name	Reason for Leaving

May current employer be contacted for a reference? _____ Yes _____ No

PERSONAL INTERESTS AND ACTIVITIES (such as clubs, organizations, etc.) to which you belong.
Exclude anything with an ethnic or religious affiliation.

ADDITIONAL INFORMATION

EXPERIENCES

Give two work-related references. (Recent graduates may name a teacher or professor as one.)

1. _____ years acquainted: _____ Phone: _____
2. _____ years acquainted: _____ Phone: _____

Personal reference:

Name: _____ years acquainted: _____ Phone: _____

Note: I understand that any offer of employment may be made contingent upon a satisfactory JOB-RELATED medical examination. I declare that the statements made by me in this application form are true and complete. I understand and agree that a false statement may disqualify me from employment, or result in dismissal.

Signature: _____ Date: _____

PRE-EMPLOYMENT INQUIRIES

The inquiries given below are the types of questions frequently posed by employers to job candidates. This chart gives some examples of the inquiries that are permitted and those that are not recommended.

Subject	Permitted Inquiries	Inquiries Not Recommended
Gender, Marital Status	Availability for shift work, travel, etc.	Plans for marriage, family, child care. Inquiries specific to gender or marital status
Race, Colour, Ancestry or Place of Origin	Are you legally permitted to work in Canada?	Place of birth, citizenship status, racial origin, next of kin
Name	Name used in previous employment and/or education for purposes of reference check	Maiden name, "Christian" name or reference to origin of name
Military Service	Military service in Canada	Foreign military service (this might indicate place of origin)
Languages	Fluency in any language specifically required by a job	Other languages when not required in a specific job
Photographs		Photographs would reveal race, gender, etc.
Clubs or Organizations	Membership in professional clubs or organizations, hobbies or interests that do not reveal gender, race, religious beliefs, ancestry or place of origin	Specific inquiries about club and organization memberships that would indicate race, religious beliefs, ancestry or place of origin
Age	Are you of legal age to work in Alberta?	Specific age over 18, including retirement information
Height and Weight	Describe job duties requiring heavy lifting or other physical job requirements	Minimum/maximum height and weight requirement/stipulations
Disability	Statement that job offer is contingent upon a satisfactory job-related medical examination. Do you feel you are capable of performing the duties as outlined?	General disabilities, limitations, present or previous health problems, workers' compensation claims or absence due to stress or mental illness
Non-smoking	An employer may ask if an applicant is a non-smoker or indicate successful applicant will be required to work in a non-smoking environment	Asthmatic or permanent respiratory conditions that may be affected by smoke

JOB SHEET 5

PREPARING FOR AND PARTICIPATING IN A JOB INTERVIEW

PROCEDURE

Note: To prepare you for a variety of interview situations and questions, this procedure should be role played many times, each time with a different partner. If possible, a community partner should be asked to participate in the role play interviews.

1. Read the following notes on the purpose of the interview.

Purpose of the Interview

- a. The interview helps the prospective employee:
 - find out more about the company and the job
 - convince the employer of his or her suitability for the job
 - decide whether or not he or she really wants the job.
- b. The interview helps the prospective employer:
 - find out more about you; e.g., knowledge, skills, attitudes
 - see what you can do for the company, your suitability
 - judge your human relations skills
 - check the information you provided in your letter of application, résumé or application form.

2. Prepare for the interview.

- a. Well before the interview date:
 - find out all you can about the company; the number of employees it has, its products and services
 - be confident and project the fact that you know that you have abilities that the company needs
 - rehearse answering questions you think may be asked.

b. On the day of the interview:

- stay calm
- check your grooming
- dress appropriately
- arrive a little before the time set for the interview.

3. Participate in the interview. Work with one or more classmates and take turns being interviewers and interviewees:

- greet the interviewer; e.g., "good morning"
- listen to the question; if you do not understand a question, ask for it to be repeated or rephrased
- respond clearly
- ask questions about wages, benefits, etc.
- at the end of the interview, thank the interviewer.

Note: Your teacher may provide you with a list of sample interview questions.

4. After the interview:

a. Assess your performance:

- what went well?
- what did not go well?
- how could I have improved my performance?

Note: Each person acting as the interviewer should make a copy of the chart on the following page, and use it to record his or her evaluation of the person being interviewed.

b. Give the person interviewed your evaluation. Be prepared to discuss your evaluations.

5. Participate in more practice interviews:

- repeat the things you did well
- correct the things you feel could be improved
- practise, practise, practise, until you feel confident to handle almost any interview.

INTERVIEW EVALUATION CHART

Interviewer: _____ Date: _____

Interviewee: _____

Position applied for: _____

Qualities/Abilities	Key Factors	Evaluation				
		Excellent 5	4	Good 3	2	Poor 1
Appearance	Grooming Appropriate dress Poise					
Speech	Clarity Use of appropriate vocabulary Vocal quality					
Personality Traits	Friendly Outgoing Enthusiastic					
Character Traits	Ambition Manners Conscientiousness Work ethic					
Skills/Abilities (In column 2, specify key skills/abilities needed for the position.)	• • • •					
Preparation	Job application/résumé Organized On time					
Participation	Proper greetings Listened Responded appropriately Asked questions					

JOB SHEET 6

DRAWING A FOOD CHAIN FLOW CHART

EQUIPMENT, TOOLS AND SUPPLIES

- Pencil
- Unlined paper

PROCEDURE

1. Choose a food product that is made from an animal raised on local farms.
2. Using the selected farm animal and yourself, as a consumer, draw and label a food chain flow chart to which you both belong.
Note: Be sure to include all the steps (e.g., processing) needed to take the potential food item from farm animal to meat on the consumer's table.
3. Include in the food chain flow chart examples of feed consumed by the animal.
4. Share your chart with classmates. Offer constructive feedback on each other's work.
5. Attach your flow chart showing the food chain to this page.
6. Using the following chart as a guide, evaluate your flow chart.

Drawing a Food Chain Flow Chart	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
All steps in the food chain were included.				
Industry terminology was correctly used.				
The flow chart is: ● legible ● understandable.				

JOB SHEET 7

IDENTIFYING LOCAL PRODUCERS AND CONSUMERS IN A FOOD CHAIN

EQUIPMENT, TOOLS AND SUPPLIES

- Pencil
- Plain white paper
- Coloured pens or pencils

PROCEDURE

1. Draw and label a food chain flow chart to show the food chain of local producers and consumers. Include each of the following organisms in the chain:
 - mouse
 - barley plant
 - bacterium
 - hawk
 - coyote.
2. Label each living thing in your flow chart as either a producer, a consumer or a decomposer.
Note: A decomposer is any bacterium or mould that decays dead plants or animals, turning their tissues into soil nutrients.
3. Colour your flow chart to increase its visual impact, and share it with classmates.
4. Discuss any differences that you find between your flow chart and those of your classmates. Offer constructive feedback on each other's flow charts.
5. Decide if you would now change your flow chart. If you think your flow chart could be improved, draw a new one.
6. Attach your flow chart to this page.

7. Using the following chart as a guide, evaluate your work.

Identifying Local Producers and Consumers in a Food Chain	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Included all stages in the food chain.				
Placed all of the organisms in the correct order in the chain.				
Used correct industry terminology.				
Produced a flow chart that is: ● legible ● understandable.				

JOB SHEET 8

MEASURING THE HEAT ABSORPTION OF DIFFERENT SOILS

EQUIPMENT, TOOLS AND SUPPLIES

- Two sheets of white paper
- Dark-coloured soil
- Light-coloured soil
- 50-mL graduated cylinder
- Flask of water
- Glass rod
- 500-mL beakers (4)
- Thermometer
- Heat lamp
- Masking tape
- Pen



PROCEDURE

Collecting Information on the Heat Held by Different Soils

Note: Read the following instructions before starting. Place an asterisk (*) beside the items that require you to record information as you conduct the experiment.

1. Spread the soil samples on the white paper at room temperature for about 48 hours or until completely dry.
2. Divide each soil sample equally into two beakers. You should now have four beakers, approximately half-filled with soil.
3. Label the beakers A1, A2, B1, B2, as shown, using the masking tape and pen.



Light Soil



Dark Soil

- Pour 50 mL of room temperature water into the beakers labelled A2 and B2.

Note: Be sure that the water is at room temperature before mixing it with the soil. Use the thermometer first to test the room temperature, then to test the water temperature. If they are the same temperature, proceed. If not, leave the water for a few hours and test it again. Do not store the water or the soil in direct sunlight as this will affect their temperatures.

- Stir the soil and water mixtures in beakers A2 and B2, using the glass rod.
- Place the thermometer in beaker A1 to a depth of 6 cm. Record the room temperature of the soil on the "Record Chart" below.

- Hang the heat lamp approximately 30 cm above beaker A1. Before turning on the lamp, mark the spot upon which the beaker is sitting, to match the beaker label.

Caution: Heat lamps can be dangerous. Be sure that it is fastened securely to a board or to some other flat, strong surface. If the lamp falls, it could cause fire or electric shock. Do not use water around the lamp, and do not touch the lamp. Have your teacher/supervisor inspect your work area before you turn on the heat lamp.

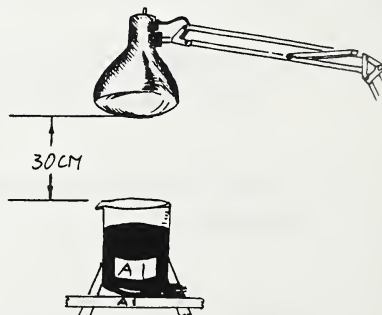
- Turn the lamp on for one hour.

- Use the thermometer to determine the temperature of the heated soil. Record the heated soil temperature in beaker A1 on the "Record Chart".

- Repeat steps 6 through 9 with beakers A2, B1 and B2. Record each temperature on the "Record Chart".

Note: Be sure you position each beaker on the spot marked with tape (step 7).

- Clean up the equipment and the work site. Store the equipment properly.



RECORD CHART

Sample Description

Beaker Number

Condition

Room Temperature of Soil

Heated Soil Temperature after One Hour

Soil Temperature Change

Light Soil		Dark Soil	
A1	A2	B1	B2
Dry	Wet	Dry	Wet

Calculating the Heat Absorption of Different Soils

1. From the temperatures recorded for each beaker, calculate the soil temperature change, and record the information on the "Record Chart". This is done for each beaker as follows:

$$\begin{array}{r} \text{Soil temperature after heating} \\ - \\ \text{Room temperature of soil} \\ \hline \text{Temperature change} \end{array}$$

Observations

1. Look carefully at your "Record Chart" and answer the following questions:
 - Which type of soil absorbed the most heat in one hour? (Compare the answers you recorded opposite #6 in your "Record Chart").
 - Describe the effect that the colour of the soil might have on its ability to absorb heat.
 - Describe any effect that water might have on the ability of soil to absorb heat.
2. Compare your chart with the charts completed by other students.

Evaluation

1. Using the following chart as a guide, evaluate your work.

Measuring the Heat Absorption of Different Soils	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedures.				
Demonstrated all related safety procedures.				
Prepared the soil samples properly.				
Positioned the heat lamp properly.				
Recorded the test results properly.				
Calculated the temperature changes accurately.				
Answered the "observations" questions correctly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

DISCUSSION TOPICS

1. Why is the heat absorption ability of soil important to farmers?

2. How can soil heat absorption rates affect a farm's operation?

3. Would rocks change the heat absorption rates? How?

JOB SHEET 9

LOCATING MARKETS FOR FARM PRODUCTS

EQUIPMENT, TOOLS AND SUPPLIES

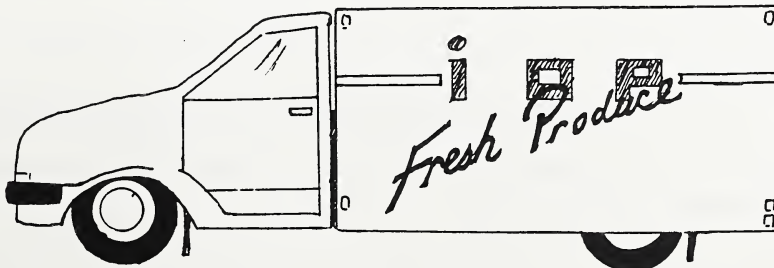
- Pen or pencil

PROCEDURE

1. Identify and interview two or more local farmers. Enquire about local farm products and their markets.
2. Use the "Farm Product Marketing Chart" below to record answers to the following questions.
 - a. What five saleable products are produced by farmers in your area?
 - b. Where do farmers take each product to be sold?
 - c. What is the distance from the farm to the market location for each product?
 - d. How is each product shipped from the farm to the market?

FARM PRODUCT MARKETING CHART

Farm Product Name					
Location of Market					
Distance to Market					
Method of Shipment					



3. Using the following chart as a guide, evaluate your work.

Locating Markets for Farm Products	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Identified local producers.				
Identified five local products.				
Identified location of market.				
Identified shipping distances.				
Identified local shipping methods.				

DISCUSSION TOPICS

1. Which of the farm products identified travels the longest distance to market?

2. Which product would take the longest time to arrive at the market? Why?

3. How might the distance to market affect the production of some farm products?

4. What might happen to the production of a farm product if its market was moved 200 km farther away than it is now?

5. What improvements in the shipping methods for any of the selected farm products might increase the number of local producers?

JOB SHEET 10

RECORDING TEMPERATURE AND RAINFALL

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Thermometer
- Rain gauge

PROCEDURE

Note: This job sheet is to be completed over two weeks, during a regular growing season. The temperature and rainfall must be recorded on a daily basis.

1. Mount the thermometer in a shady spot (try the north side of a building).
 2. Mount the rain gauge in an open area where rain can fall directly into it.
 3. Using the "Temperature and Rainfall Chart" below:
 - a. record the daily temperature taken at the same time each day for two weeks
 - b. record daily rainfall. Read the gauge and empty it at the same time each day for two weeks.
- Note:** The temperature and rainfall readings should be taken during the same two week period.

TEMPERATURE AND RAINFALL CHART

	Week 1							Week 2						
Date														
Temperature														
Rainfall														
Measurement Time														

4. Clean and return the measuring equipment to proper storage area.

5. Using the following chart as a guide, evaluate your work.

Recording Temperature and Rainfall	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Used the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Located the measuring instruments properly.				
Completed the chart.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				

DISCUSSION TOPICS

1. a. What units are commonly used to measure temperature? Rainfall?

- b. Could other units of measurement be used? Why or why not?

2. Is the chart on the previous page the best way of recording daily temperatures? Why? Why not?

3. Is there a better way to record daily temperatures? Explain your answer.

4. How much rainfall did your area receive during the two weeks you recorded?

5. Using the completed "Temperature and Rainfall Chart" as a resource, which of the farming activities would have been best suited to the two weeks you investigated? Explain your choice(s).

- baling hay
- seeding cereal crops
- harvesting cereal crops
- spraying cereal crops
- working summer fallow
- fertilizing cultivated land
- fertilizing hay land
- fencing

JOB SHEET 11

TRAVELLING SAFELY WITH FARM MACHINERY

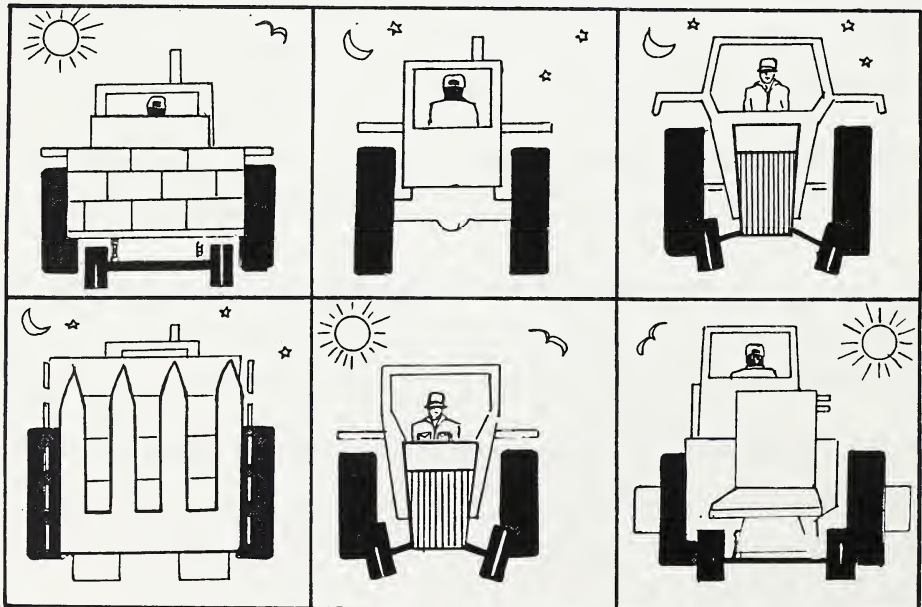
EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Coloured pencils or pens

PROCEDURE

1. Research the current legal farm equipment markings and lights needed for safe daylight and night highway driving when travelling with agricultural equipment. List the sources of your information.

2. Sketch, colour and label all the safety signs or lights that need to be visible in each of the following diagrams.



3. Return the pens and pencils to their proper storage area.

4. Using the following chart as a guide, evaluate your work.

Travelling Safely with Farm Machinery	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Identified the travel requirements.				
Returned the pencils and pens to their proper storage areas.				

DISCUSSION TOPICS

1. What precautions must be taken when travelling with high machinery down a road crossed by electrical lines?

2. What extra precautions (other than lights or signs) must be taken when travelling with wide loads or wide machinery down the road during the day?

3. What extra precautions (other than lights or signs) must be taken when travelling with wide loads or wide machinery down the road during the night?

JOB SHEET 12

IDENTIFYING FARM SAFETY CLOTHING AND EQUIPMENT

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil

PROCEDURE

1. Visit a farm and observe four of the following jobs being performed. You may also choose to investigate a fifth job that is not on the list.

Safety

Note: Carefully follow the teacher's/supervisor's safety recommendations during the observation task.

- | | |
|------------------------------------|----------------------------------|
| ● operating a farm tractor | ● repairing a barbed wire fence |
| ● mixing weed spray | ● operating a combine or swather |
| ● applying anhydrous ammonia | ● shovelling grain inside a bin |
| ● loading or unloading fence posts | ● using a chain saw |
| ● welding | ● performing welding repairs |
| ● tying a cow to a post | ● performing mechanical repairs |
| ● handling feed bales | ● operating a grain auger |

2. Note the protective clothing worn or equipment used by the people you observe. Discuss the potential dangers of doing each job, and decide if there are any other safety items that could be used for each job you observed. Record this information on the "Farm Safety Chart" on the following page.



FARM SAFETY CHART

Farm Activity Observed	Possible Dangers	Protective Clothing and Equipment

3. After sharing your chart with classmates, make any changes or additions required on your own chart.
4. Using the following chart as a guide, evaluate your work.

Identifying Farm Safety Clothing and Equipment	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Identified all related hazards.				
Identified all related safety procedures.				

JOB SHEET 13

COLLECTING SOIL SAMPLES

EQUIPMENT, TOOLS AND SUPPLIES

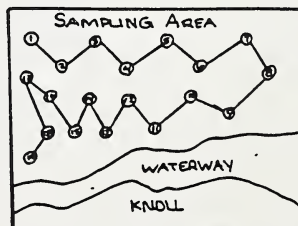
- Clean sheet of paper (30 cm×30 cm or larger)
- Pen or pencil
- Core sampling tool
- Clean pail
- Plastic bag
- Twist tie
- Soil sample box
- Information sheet

Note: The core sampling tool, soil sample box and information sheet are all available at the office of your district agriculturalist.

PROCEDURE

1. Choose a cultivated field anytime in early spring or after October 1st.
2. Sample the average soil areas. Look over the field to see if there are any unusual areas (bogs, eroded hills, old manure piles, etc.). These areas should be avoided or sampled separately.
3. Read the soil sampler instructions for the tool you will be using in order to sample to a depth of 15 cm.
4. List the instructions for removing a shallow (1 cm to 15 cm) core with the tool you will be using.

5. Take 15 to 20 samples at random in the average soil areas of the field. Take samples to form a zigzag pattern as shown in the diagram:



6. Place each core in the clean pail.

7. Mix the cores in the pail with your hands. Crush the lumps.



8. Spread about half a kilogram of the soil mixture on the clean piece of paper and let it air dry at room temperature for three days.

Note: If soil samples are not dried, nitrates will form in the sample, resulting in false test results.

9. Place the clean plastic bag in the soil sample box and fill it completely with the dry soil.

10. Close the plastic bag using the twist tie.



11. Complete the information sheet, tear off your copy and enclose the others in the box.

12. Write your name, address and the depth of your sample (1 cm to 15 cm) on the box.

13. Clean your work area.

14. Your sample should now be ready for mailing.

- Find out the cost of the postage to mail the sample to the laboratory, and write it in this space _____.

15. Ask your district agriculturalist what the cost would be to have your sample analyzed at the lab. Write the amount in this space _____.

16. Describe the field you sampled.

17. Did you have any problems in choosing a field to sample? List the problems.

Adapted from *Soil Sampling Guide*, 1988, Agdex #533-4, Alberta Agriculture. Reprinted with permission.

18. Did you have any problems getting the core samples? List the problems.

19. Compare your responses with classmates. Use the following space to share suggestions for solving any problems you noted in steps 17 and 18.

20. Clean and return the core sampling equipment and tools to its proper storage area.

21. Using the following chart as a guide, evaluate your work.

Collecting Soil Samples	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Performed the task at the proper time of year.				
Identified the proper areas for sampling.				
Followed the listed sampling procedure.				
Labelled the sample properly.				
Described the sample area properly.				
Cleaned and returned the core sampling equipment to its proper storage area.				
Cleaned up the work area.				

DISCUSSION TOPICS

1. How often is soil sampling done?

2. What other problems or situations require soil sampling?



JOB SHEET 14

TESTING SOIL SAMPLES FOR pH VALUE

EQUIPMENT, TOOLS AND SUPPLIES

- Teaspoon
- Glass jars (6)
- pH indicator paper and test strips
- Test tubes (6)
- Test tube rack
- Glass rod
- Distilled water
- Mortar and pestle
- Spade
- Graduated cylinder (25 mL)
- Felt pen
- Pencil

PROCEDURE

1. Take six soil samples by digging a V-shaped notch in the ground, no deeper than 15 cm.
Note: Try to get a wide range of samples from low areas, areas with trees, cultivated fields, grass fields, problem growth areas, tops of knolls and other areas.
2. Crush any lumps and put a separate sample in each jar.
Note: In sod, remove the roots of plants from the soil before putting the sample in the jar.
3. Using the felt pen, label each jar with a number and a brief description of the soil's location on the field. Record the information on the "Soil Sample pH Chart" on the following page.
4. Place about 10 g (about 1 teaspoonful) of your first soil sample in the mortar.
 - a. Add 10 mL of distilled water to the soil sample and grind the mixture using the pestle.

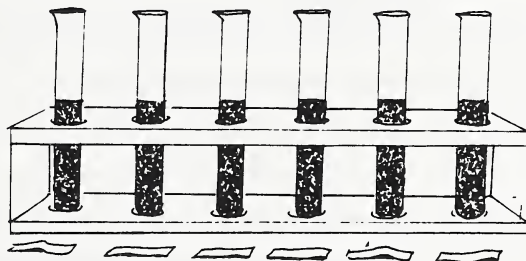


- b. Pour the mixture in a test tube and label it with the number of the jar from which it was taken. Stand the test tube in the test tube rack.

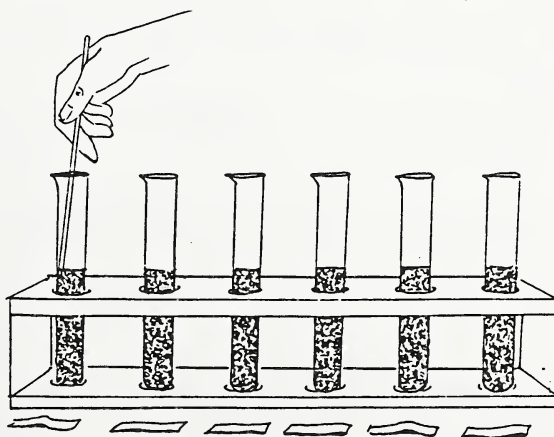
5. Rinse the mortar and pestle with distilled water and repeat steps 4a and 4b with each of the other five soil samples.

Note: To obtain accurate results, your equipment must be rinsed with distilled water after mixing each soil sample.

6. Lay a strip of test paper (approximately 1 cm $\times$ 3 cm) in front of each test tube.



7. Label each strip of test paper with the number of the soil sample it will be used to test.
8. Let the tubes stand for about 10 minutes.
9. Stir your first mixture with the glass rod and, using the rod, transfer a drop of the liquid to the test paper strip with the same number as the test tube.



10. Note the colour of the test paper strip where the drop has been placed, and compare that colour with the colour scale on the indicator.

11. Identify the closest colour match to your test strip on the indicator paper and record the pH of your test sample on the "Soil Sample pH Chart" below.
12. Rinse the glass rod with distilled water and repeat steps 9, 10 and 11 with each of the other mixtures.

Note: To obtain accurate results, the glass rod must be rinsed with distilled water after each use.

SOIL SAMPLE pH CHART

Soil Sample Number	Description of Soil Sample Area	pH
1		
2		
3		
4		
5		
6		

13. Clean and return the equipment, tools and supplies to their proper storage areas.
14. Clean up the work area.
15. **Observations**
 - a. Which soil sample(s), if any, have a pH less than 7? List the sample number(s) and description(s).

 - b. Which soil sample(s), if any, have a pH of 7? List the sample number(s) and description(s).

 - c. Which soil sample(s), if any, have a pH greater than 7? List the sample number(s) and description(s).

- d. Research the meaning of the term "pH". Discuss with other students what a pH level of 7, less than 7 and greater than 7 tells you about soil. How does the pH level relate to the acid or alkaline nature of the soil?

- e. How does the pH level of soil affect the types of crops that can be produced?

- f. Name a crop that might perform better than others in each of the following types of soil:

- acid soil

- neutral soil

- alkaline soil

- g. Ask your district agriculturalist if anything can be done to neutralize acid soils. Name a product that the DA suggests might neutralize acid soils.

- h. If you were to do this test again, what might you do differently?

16. Using the following chart as a guide, evaluate your work.

Testing Soil Samples for pH Value	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Prepared the samples for testing.				
Completed the testing procedure properly.				
Achieved accurate test results.				
Answered the questions correctly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 15

IDENTIFYING ORGANISMS IN THE SOIL

EQUIPMENT, TOOLS AND SUPPLIES

- Topsoil
- Microscope
- Distilled water
- Jar with lid
- Medicine dropper
- Microscope slides
- Coverslips
- Graduated cylinder (250 mL)
- Paper
- Pencil

PROCEDURE

1. Place about 10 mL of topsoil in the jar.
2. Pour 50 mL of distilled water into the jar.
3. Shake the jar to mix the soil and water.
4. Using the medicine dropper, place a drop of the muddy solution onto a microscope slide.
5. Cover the drop, using a coverslip. Move the coverslip around, applying gentle pressure to squeeze out any air bubbles.
6. Using the low power setting, inspect the drop through the microscope. What living things can you see?

7. Draw the organisms that are now visible in the muddy solution.



8. Repeat steps 1 to 7 using another sample of topsoil from another location.
9. Clean and return the equipment, tools and supplies to their proper storage areas.
10. Clean up the work area.
11. Compare your observations and drawings with those of classmates. If you find organisms that you have in common with someone else, circle them on your drawings.
12. Research and identify the organisms you have circled on your drawing.
13. Label the circled organisms with their commonly used names.
14. Research and record what each of these organisms do in the soil.

15. Using the following chart as a guide, evaluate your work.

Identifying Organisms in the Soil	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Identified all circled organisms correctly.				
Determined correctly what organisms do in the soil.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 16

BUILDING A SOIL MACRO-ORGANISM COLLECTOR

EQUIPMENT, TOOLS AND SUPPLIES

- Scissors
- Tin can (large, over 1-L capacity, but not more than 15 cm in diameter)
- Porcelain lampholder (with 2 mounting screws, about 15 mm long)
- Bulb (12 volt, 25-W to 50-W, with a regular base)
- Automotive battery (12 volt with top-mounted posts)
- Battery post clips (2)
- Insulated wire (14 gauge, 2 metres or more)
- Wire stripper
- Can opener (to remove one end)
- Can opener (to pierce triangular holes)
- Measuring tape
- Plywood (approximately $\frac{1}{4}$ sheet of 19-mm thick)
- Wood saw
- Bench vise
- Electric drill
- Drill bit set
- Finishing nails (32 mm)
- Household funnel (mouth approximately 15 cm in diameter)
- Hammer
- Leather work gloves
- Sponge
- Screwdriver set
- Film roll container (empty)
- Jigsaw (with wood-toothed blade)
- Baking soda
- Safety goggles
- Coveralls
- Vinyl gloves
- Felt pen

PROCEDURE

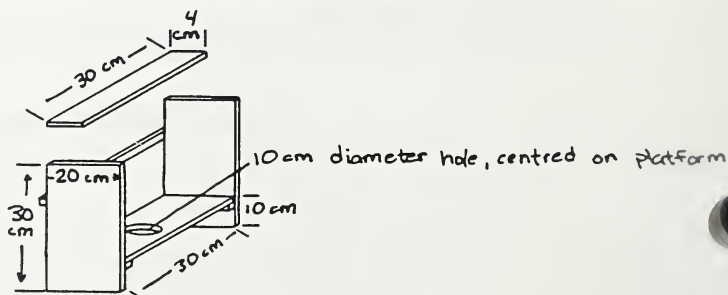
1. Put on the safety goggles and protective clothing.
2. Build the collector frame as shown in the following diagram. Use the 19-mm plywood.

Safety

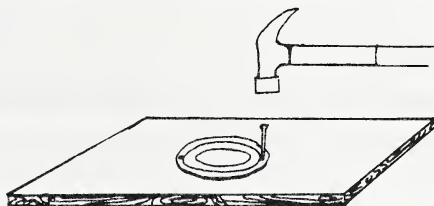
Note: Follow all safe use instructions given by your teacher/supervisor.

3. Cut out one end of the tin can.

Note: Save the end of the tin can.



4. Nail the tin can lid to a scrap piece of plywood using the finishing nails.



5. Clamp the plywood firmly in a vise to hold it steady while drilling through the tin can lid.
6. Put on the gloves.
7. Drill at least 20 holes, each 6 mm in diameter, in the tin end that you removed.
Caution: The tin end is very sharp and drilling holes may cause it to spin around rapidly. Never grab the tin if it starts to spin. Turn off the drill to stop the spinning.
8. Drill a 6-mm hole in the centre of a 30 cm $\times$ 4 cm plywood strip. (You will insert the wires in this hole in step 10.)
9. Place the porcelain lampholder against the top of the can. Using the felt pen, mark the locations of the two screw mounting holes on the top of the can.
10. Drill 6-mm holes for screws at the spots you marked on the top of the can.
11. Cut the insulated wire into two equal lengths. Using the wire strippers, bare about 1 cm at the ends of both wires.
12. Thread the wires through the hole in the 30 cm $\times$ 4 cm strip of plywood. Then thread them through the centre hole in the tin can.
13. Connect a bare end of each wire to separate terminals on the porcelain lampholder, and tighten the terminals with the screwdriver.
14. Mount the porcelain lampholder to the screws through the two holes you drilled in step 8. Turn the screws snugly into the 30 cm $\times$ 4 cm strip of plywood.
Note: Be sure that you have centred the can on the 30 cm $\times$ 4 cm strip of plywood.
15. Drill a hole in the cap of the film roll container, large enough to fit through the spout of the funnel.

16. Place the funnel through the 10-cm hole in the plywood platform. Fit the spout into the film container.
17. Using the scissors, cut a piece of sponge large enough to make a snug fit between the spout of the funnel and the film container. This is done by placing the sponge under the film container that will hold it up.
18. Place the cut out end of the tin can (with the many holes drilled in it) in the mouth of the funnel.
19. Screw the 25-W to 50-W bulb into its socket.
20. Pierce at least four triangular holes in the top of the can so heat can escape.
21. Describe the proper procedure for using the eyewashing equipment in your lab or workplace.

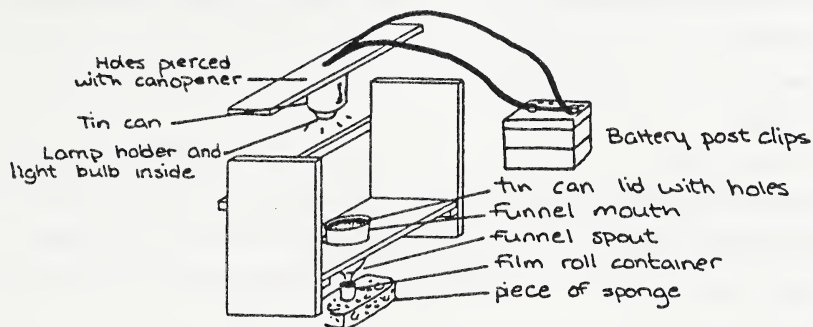
Caution: Automotive batteries give off explosive gases. Do not use any flame around the battery. Do not smoke while using the battery.

22. List the fire safety rules for your lab or workplace.

23. Attach two battery post clips to the free ends of the wires.

Caution: Automotive batteries are filled with a strong acid. Always wear safety goggles, vinyl gloves and coveralls when handling any automotive battery. Always carry and store the battery in an upright position. Have the baking soda handy to sprinkle on any spills, or to mix with water for rinsing your skin or clothes in case of a spill or leak. Report any spills to your teacher/supervisor immediately.

24. Place the automotive battery approximately 80 cm or more from your collector.
25. Connect the clips to the battery posts, one marked "+" (positive) and the other marked "-" (negative), to see if the bulb gives off light.
26. Place the tin can upside down in the mouth of the funnel, and place the ends of the plywood strip between the ends of the collector frame.



27. Clean and return the equipment, tools and supplies to their proper storage areas.
28. Clean up the work area.
29. Record any problems you had while building this collector. Describe how you could solve or avoid these problems in the future.

30. Using the following chart as a guide, evaluate your work.

Building a Soil Macro-organism Collector	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 17

IDENTIFYING SOIL MACRO-ORGANISMS

Note: This job sheet is suitable for individual work or student group work for up to five students.

EQUIPMENT, TOOLS AND SUPPLIES

- Soil macro-organism collector
- Car battery (12 v)
- Weigh scale
- Methyl hydrate
- Sheet of white paper
- Cheesecloth (about 30 cm × 30 cm)
- Soil core sampler or spade
- Graduated cylinder (50 mL)
- Magnifying glass
- Small kitchen strainer (fine-screened)
- Water

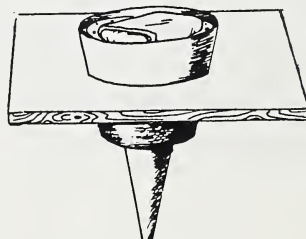
PROCEDURE

1. Dig a surface sample of soil (1 cm to 15 cm deep), using the spade or the core sampling tool.

Note 1: If using the core sampling tool, list the steps followed to obtain a sample.

Note 2: If you are using a spade, cut a V-shaped notch no deeper than 15 cm to obtain your sample. Do NOT dry this sample.

2. Wrap about 500 g of soil in the cheesecloth. Place the sample wrapped in cheesecloth on top of the perforated tin can lid inside the mouth of the funnel.



3. Measure and then pour 12 mL of methyl hydrate and then 2 mL of water into the collector vial (the plastic film roll container).

Safety

Note: Methyl hydrate is poisonous and flammable. Read the label and list the safety precautions that must be followed when handling this chemical.

4. Connect the battery post clips to the battery.

Caution: The light bulb will become hot. Make sure it is at least 5 cm away from the cheesecloth to prevent a fire. If the cheesecloth is too close to the bulb, remove some soil or trim the cheesecloth to a smaller size and try again.

5. When the soil sample has dried completely (usually about 48 hours), turn off the collector bulb and remove the collector vial (film container) from under the funnel spout.
6. Pour the contents of the collector vial through the fine-screened strainer.



7. Tap the strainer upside down on the sheet of white paper, and look for any organisms on the paper.
8. Study any organisms that you can see with the magnifying glass and complete the following chart for Sample 1.

	Type of Soil	Number of Macro-organisms Collected	Drawings of Macro-organisms Found
Sample 1			
Sample 2			

9. Repeat this procedure with another type of soil and complete the above chart for Sample 2.
10. Clean and return the equipment, tools and supplies to their proper storage areas.
11. Compare your chart with those of your classmates. If any of your drawings look similar, find out what the organisms might be by doing some research in the library.
12. Label any of the macro-organisms that you can identify on your chart.
13. Discuss with classmates which types of soils contained the most visible organisms. List your findings.

14. Using the following chart as a guide, evaluate your work.

Identifying Soil Macro-organisms	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Cleaned and returned all items to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 18

COLLECTING SOIL MACRO-ORGANISMS

Note: This job sheet may be used instead of Job Sheets 16 and 17.

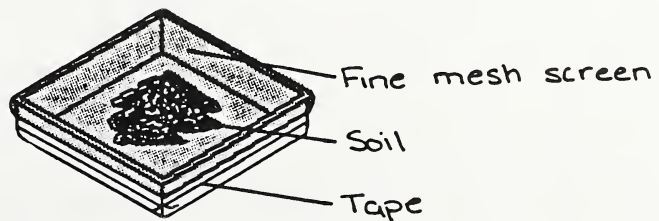
Macro-organisms are living things that can be seen without a microscope.

EQUIPMENT, TOOLS AND SUPPLIES

- Shallow tray (up to 10 cm deep, and 20 cm × 20 cm or larger)
- Fine-mesh screen material (slightly larger than the shallow tray being used)
- Soil core sampling tool or spade
- White paper (2 sheets)
- Magnifying glass
- Methyl hydrate
- Small forceps
- Flask (50 mL)
- Kitchen strainer (fine-mesh)
- Duct tape or masking tape
- Water

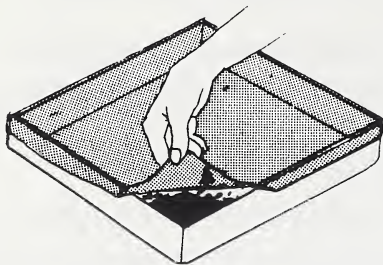
PROCEDURE

1. Dig a soil sample to obtain about 500 g of topsoil.
2. Place the sample directly in the shallow tray.
3. Cover the tray with the fine-mesh screen material so that there are no openings, and tape it securely to the sides of the pan.



4. Shake the tray gently to spread the soil evenly over the bottom. This will help the soil dry sooner.
5. Air-dry the sample at room temperature for three days.

6. Peel back the screen from one corner. Shake out about 50 g of the dry soil onto the white paper.

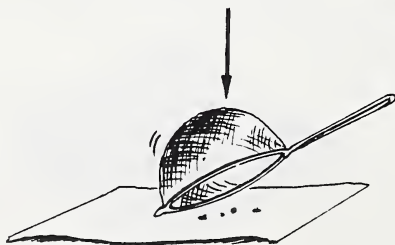


7. Using the forceps and magnifying glass, sort through the soil on your paper to find any living or non-living forms of animal life.
8. If you find any living organisms, drop them into the flask containing a mixture of 30 mL of methyl hydrate and 5 mL of water.

Safety

Note: Methyl hydrate is poisonous and flammable. Read the label and write the safety precautions in the following space.

9. Strain any organisms in your flask using the fine-mesh kitchen strainer. Turn the strainer upside down, and tap it over the other piece of white paper. Both the living and non-living organisms should now be on the white paper.



10. Using the magnifying glass, study the organisms that you see, and complete the following chart for Sample 1.

	Type of Soil	Number of Macro-organisms Collected	Drawings of Macro-organisms Found
Sample 1			
Sample 2			

11. Repeat this procedure with another type of soil and complete the above chart for Sample 2.
12. Clean and return the equipment, tools and supplies to their proper storage areas.
13. Clean up the work area.
14. Compare your chart with those of classmates. If any of your drawings look similar, research what the organisms might be.
15. Label the macro-organisms that you can identify on your chart .
16. Discuss with classmates which types of soils contained the greatest number of visible organisms. List your findings.

17. Using the following chart as a guide, evaluate your work.

Collecting Soil Macro-organisms	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected and used the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Cleaned and returned all items to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 19

OPERATING A FARM TRACTOR

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Field tractor (35 hp or more)
- Tractor operator's manual

PROCEDURE

Preparation

1. Study the tractor operator's manual. Pay particular attention to the operating instructions and safety rules.

2. Name the tractor make and model. _____

3. What safety rules must be followed when operating the tractor?

4. What safety equipment should be used while operating the tractor?

5. Observe the correct procedure to prepare the tractor for operation.

6. List, in the correct order, steps in the procedure to follow to prepare the tractor for operation.

Operation

7. Observe the correct way to start and operate the tractor.
 8. List, in the correct order, the starting and operating procedures that you observed.

 9. Observe the correct way to shut down, clean and store the tractor.
 10. List, in the correct order, the shutting-down, cleaning and storage procedures that you observed.

 11. List the potential dangers of operating a tractor.

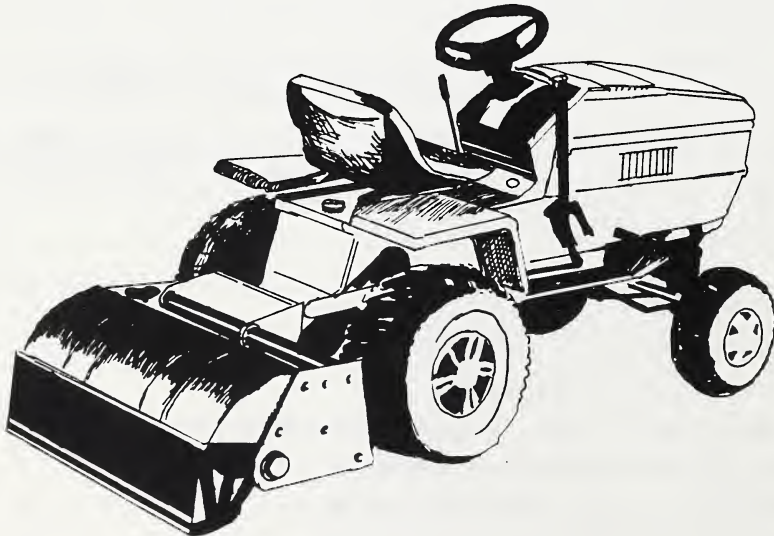
- Caution:** The tractor's transmission must be in neutral before starting the engine or dismounting a running tractor. The brake must be set before dismounting a tractor at any time. Be familiar with the location of all hydraulic controls, and be sure they are in a neutral position before starting the engine or dismounting the tractor at any time. Be familiar with the power take off (pto) control, and be certain it is disengaged before starting the engine.
12. Demonstrate the preparation of the tractor.
 - a. Make sure everyone is clear of all rotating parts.
 - b. Demonstrate the proper starting procedure.
 - c. Operate the tractor in a field. Practise driving in a straight line, using a visible landmark on the other side of the field to aim steadily toward.
 - d. Make a keyhole turn at the other end of the field.

- e. Travel back toward your starting point, driving parallel to your original path.
- f. Stop the tractor.
- g. Carefully practise backing up. Make some planned turns while doing so.
- h. Stop the tractor.
- i. Perform the steps of shutting down, cleaning and storing the tractor as you were directed.

13. Complete the "Equipment Operation Record Sheet" on page 67.

14. Using the following chart as a guide, evaluate your work.

Operating a Farm Tractor	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected and used the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Cleaned and returned all items to their proper storage areas.				
Cleaned up the work area.				



EQUIPMENT OPERATION RECORD SHEET

1. List the name, make and model of the equipment.

2. Are there other uses for this equipment?

3. What skills did you learn by operating this equipment?

4. What safety procedures did you learn by operating this equipment?

5. Discuss the operation of the equipment used with classmates who used similar equipment. Explain the similarities and differences in experiences.

6. Did you have any difficulty operating this equipment? If so, describe the difficulty and how you will avoid it in the future.

JOB SHEET 20

OPERATING A TRACTOR AND A SET OF HARROWS

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Field tractor (35 hp or more, suited to pulling a set of harrows)
- Tractor operator's manual
- Set of harrows attached to a drawbar that pulls 10 or fewer harrows, not equipped with hydraulic lifts
- Hitch pin to fit the harrow drawbar hitch and the tractor drawbar
- Hairpin key to fit the hitch pin hole

PROCEDURE

Preparation

1. Study the tractor operator's manual. Pay particular attention to the operating instructions and safety rules.
2. Name the tractor make and model. _____
3. What safety rules must be followed when hitching and using a tractor pulling a set of harrows?

4. Observe:
 - preparation of the tractor
 - preparation of the harrows.

5. Describe the procedures used to prepare the tractor and the harrows for operation. Make sure the steps are listed in the correct order.

Tractor Preparation	Harrow Preparation

Operation

6. Observe the proper method of hitching the harrows to the tractor.
7. List the steps in the hitching procedure in the correct order.

8. Observe the operation of the tractor and harrows in a field.
9. List the potential dangers of operating the tractor and harrows.

10. Observe the proper method of shutting down, cleaning and storing the tractor and harrows.

11. List the steps followed to shut down, clean and store the tractor and harrows. Make sure the steps are listed in the correct order.

12. Operate the tractor and harrows in a field according to the procedure you observed.

Caution: Be sure that you are a safe distance from people, animals, other equipment, buildings, fences, power poles, overhead wires and other obstacles before moving the tractor and harrows.

13. Practise driving in a straight line. Use a landmark on the other side of the field as a guide.

Note: Avoid driving parallel to the direction that the field was worked most recently. Instead, travel perpendicular to or diagonal to the previous direction of travel. This will make your work more effective and easier to see as you make another round on the field.

14. Make a keyhole turn at the other end of the field.

Caution: Give yourself plenty of room to turn. Be careful not to turn too sharply. Check that the harrow drawbar cables or braces behind the rear tractor wheels do not get caught on the tractor tire lugs. If the tractor tire touches a cable or brace, stop the tractor immediately and tell your teacher/supervisor.

15. Travel back toward your starting point. Drive parallel to the first track you made. Overlap should be no more than 10 per cent, and you should not have missed any ground between your last pass and the pass you are completing.

16. Stop the tractor and unhitch the harrow hitch from the tractor drawbar.

17. Shut down, clean and store the equipment.

18. Observe the work that the equipment did, and complete the "Equipment Operation Record Sheet" on page 72.

19. Using the following chart as a guide, evaluate your work.

Operating a Tractor and a Set of Harrows	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Overlapped the harrow tracks less than 10%.				
Drove parallel to previously made tracks.				
Cleaned and returned all items to their proper storage areas.				
Cleaned up the work area.				



EQUIPMENT OPERATION RECORD SHEET

1. List the name, make and model of the equipment set-up (tractor and harrows).

2. Are there other uses for this equipment set-up?

3. What was the effect of this equipment set-up on the field you worked?

4. What skills did you learn by operating this equipment set-up?

5. Discuss the operation of this equipment set-up used with classmates who used similar equipment. Explain the similarities and differences in experiences.

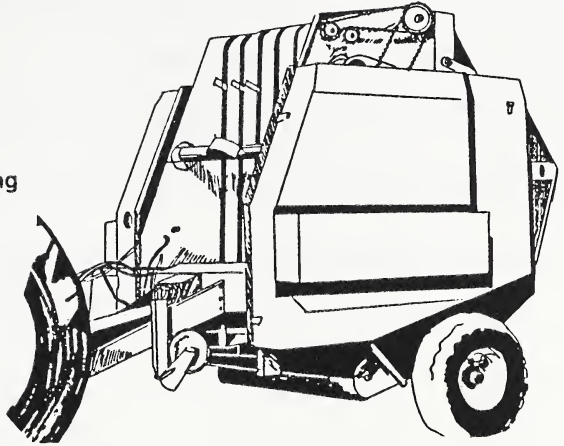
6. Did you have any difficulty in operating this equipment set-up? If so, describe the difficulty and how you will avoid it in the future.

JOB SHEET 21

OPERATING A BALER

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Baler
- Tractor suited to operating the baler you're using
- Baler operator's manual
- Tractor operator's manual



PROCEDURE

Preparation

1. Study the tractor operator's manual. Pay particular attention to the operating instructions and safety rules.
2. Study the baler operator's manual focusing on the safety rules for operating this type of equipment.
3. List the safety rules for operating the tractor and the baler in the chart below.

Tractor Safety	Baler Safety

4. Observe the procedure to prepare the tractor and baler for operation.
5. Describe the procedures used to prepare the tractor and the baler for operation. Make sure the steps are listed in the correct order.

Tractor Preparation	Baler Preparation

Operation

6. Observe the proper method of hitching the baler to the tractor.
7. List the steps in the hitching procedure in the correct order.

8. List the potential dangers involved in hitching a baler to a tractor.

9. Observe the operation of the tractor and baler in a field that is ready for baling.

10. List the steps in the baling procedure.

11. Inspect a bale after it has been released by the baler. (Your teacher/supervisor will show you the signs of a well-formed bale.) Describe a well-formed bale.

12. Observe the proper method of shutting down, unhitching, cleaning and storing the baler and tractor. List the steps in each procedure in the correct order.

Equipment Shutdown	Equipment Unhitching	Equipment Cleanup	Equipment Storage

13. Operate the tractor and baler in a field that is ready for baling. Travel so that the entire window is centred in the baler pickup. Follow all safety rules and operating instructions until one bale has been released by the baler. Stop the tractor.

Caution: Follow all safety rules when dismounting the tractor. Stay clear of the baler when it is in operation. Be sure the tractor brake is set.

14. Inspect the bale for correct formation.

Caution: Do not make any adjustments to the baler while it is in operation. Follow all safety rules as they appear in the baler operator's manual. If you notice any problems, shut down the baler and tell your teacher/supervisor immediately.

15. If the baler is working well, continue baling until several more bales are formed, or until your teacher/supervisor tells you to stop.
16. Clean and return the equipment, tools and supplies to their proper storage areas.
17. Complete the "Equipment Operation Record Sheet" on the following page.
18. Using the following chart as a guide, evaluate your work.

Operating a Baler	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Completed all records.				
Recorded information accurately.				
Operated the baler properly.				
Inspected bale formation.				
Cleaned and returned all items to their proper storage areas.				
Cleaned up the work area.				

EQUIPMENT OPERATION RECORD SHEET

- List the name, make and model of this equipment set-up (tractor and baler).

- Name the crops that this equipment set-up can handle.

- Describe the uses for the crops after baling.

- What skills did you learn by operating this equipment set-up?

- Discuss the operation of this equipment set-up you used with classmates who used similar equipment. Explain the similarities and differences in experiences.

- Did you have any difficulty operating this equipment set-up? If so, describe the difficulty and how you will avoid it in the future.

JOB SHEET 22

IDENTIFYING DANGEROUS CHEMICALS

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil

PROCEDURE

1. Visit a local business that sells chemicals for controlling weeds and insects.
2. Identify four herbicides (chemicals that control or kill certain plants) and write the "trade" names of each herbicide in the chart below.
3. Identify four insecticides (chemicals that control or kill certain insects) and write the "trade" names of each insecticide in the chart below.
4. Place an "X" under any symbol displayed on the label of each herbicide and insecticide.

	Trade Names				
Herbicides					
Insecticides					

5. Do any of the pesticides display all four warning symbols on their labels? If so, name them.

6. What do each of the following symbols mean? Describe the meaning.













7. Using the following chart as a guide, evaluate your work.

Identifying Dangerous Chemicals	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper examples.				
Completed all steps in the procedure.				
Completed the charts.				
Provided accurate information.				

JOB SHEET 23

MAINTAINING A COMBINE

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Grease gun
- Wiping rag
- Combine operator's manual

PROCEDURE

1. Study the combine operator's manual. Locate the information you need to complete columns 1, 2 and 3 of the following chart.

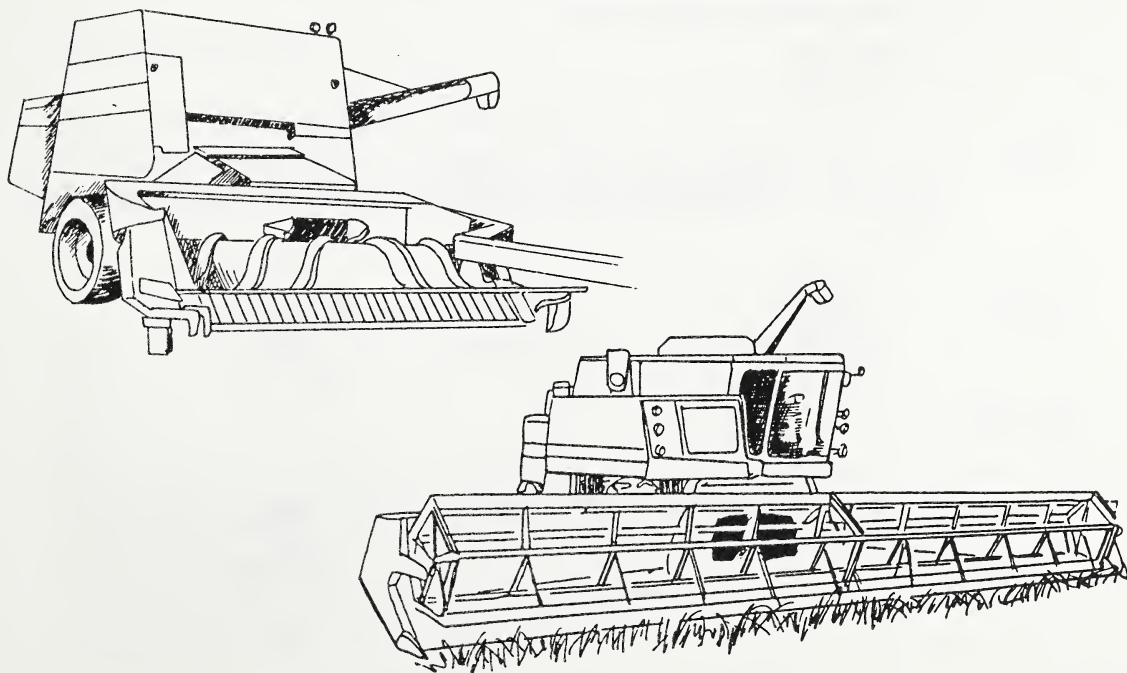
COMBINE MAINTENANCE CHART

Maintenance Areas	Maintenance Schedules	Maintenance Activities	Maintenance Actions Taken/Date
Fluids			
Example: <i>Engine oil</i>	<i>Check every 10 h</i>	<i>Fill to "full" with CD 15/40</i>	<i>Added 2 L/Sept. 7</i>
Lubrication			
Hoses			

Maintenance Areas	Maintenance Schedules	Maintenance Activities	Maintenance Actions Taken/Date
Belts			
Filters			
Screens			
Example: <i>Radiator</i>	<i>Every 10 h</i>	<i>Remove chaff, straw or dust with brush</i>	<i>Cleaned/Sept. 5</i>
Chains			
Tires			
Lights			
Other			

2. Review your work with your teacher/supervisor to see if other maintenance categories are required. Add these, if necessary.
3. Perform a thorough maintenance check of combine, using your "Combine Maintenance Chart".
Caution: Never perform any maintenance on a combine that is running. Park the combine on level ground. Shut off the engine and set the brake before beginning. Block the header and any other parts properly as noted in the operator's manual.
4. Using the following chart as a guide, evaluate your work.

Maintaining a Combine	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Completed the maintenance chart accurately.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				



JOB SHEET 24

DRESSING TO PREVENT CHEMICAL POISONING

EQUIPMENT, TOOLS AND SUPPLIES

- Long-sleeved shirt
- Long pants
- Coveralls
- Neoprene or rubber boots
- Unlined neoprene, nitrile or butyl rubber gloves
- Wide-brimmed hard hat
- Goggles or face shield
- Polyvinyl chloride (PVC)-coated apron



Safety

Note 1: The protective clothing and procedure listed in this job sheet is provided as a guide. Always follow the instructions given by your teacher/supervisor.

Safety

Note 2: Certain materials absorb chemicals and prolong the exposure of the handler to poisonous chemicals.

Do not wear any of the following:

- cloth or leather gloves
- leather watch strap or belt
- canvas or leather boots or shoes
- fabric caps
- dust masks.

Safety

Note 3: Never handle chemicals with a rating of MODERATE or HIGH toxicity without wearing a RESPIRATOR. Symbols used to show moderately and highly toxic chemicals are shown below.

Moderate
Toxicity



High
Toxicity



PROCEDURE

1. Button up the shirt including the sleeves and the neck.
2. Button or zip the coveralls up to the neck.



3. Put on the boots, and fold the coveralls over the outside of the boots.

Note: Do NOT tuck them inside the tops of your boots.

4. Put on the protective apron.

5. Put on the goggles or face shield.

6. Put on the hard hat.

7. Put on your safety gloves. The coverall sleeves must be over the tops of the gloves.

Note: Do NOT tuck them inside the tops of your gloves.

Caution: Always read the label on the container before handling any chemical. Know the first-aid steps to follow in case of an accident.

8. When you are finished working with any pesticide, what should you do with your clothing and any exposed skin? _____

9. Locate and record the toll-free, Alberta-wide telephone number of the Poison Control Centre.

10. Clean and return the equipment, tools and supplies to their proper storage areas.

11. Clean up the work area.

12. Properly dispose of all toxic contaminated wastes.

13. Using the following chart as a guide, evaluate your performance.

Dressing to Prevent Chemical Poisoning	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				
Disposed of toxic contaminated wastes properly.				

JOB SHEET 25

SAMPLING HAY BALES

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Hay core sampler (may be borrowed from a local feed dealer or district agriculturalist)
- Clean plastic bag with tie (a bread bag will do, or you can use a sample bag provided by the feed dealer or DA)
- Masking tape or self-sticking label

PROCEDURE

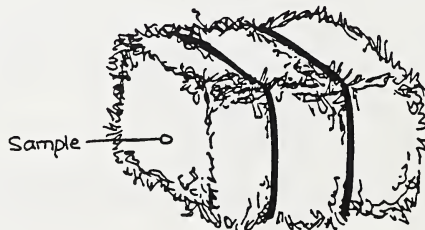
Preparation

1. Locate a local farmer who will allow you to sample a haystack.

Note: If the haystack you are sampling is a stack of rectangular bales, use Procedure A. If the haystack you are sampling is a stack of large, round bales use Procedure B.

Procedure A (for rectangular bales)

1. Drive the core sampler into the centre of the end of a bale.
2. Turn the handle of the core sampler, and push in until the sampler is at its full depth.
3. Pull the core sampler out, and empty its contents directly into the sample bag.
4. Repeat this procedure on at least 20 different bales.
5. Secure the bag and label it using the masking tape or a label with the following information:
 - your name, address and telephone number
 - date
 - type of hay
 - location of bales.



Procedure B (for large, round bales)

1. Drive the core sampler into the centre of the round surface of the bale (not the end surface).
2. Turn the handle of the core sampler, and push in until the sampler is at its full depth.
3. Pull the core sampler out, and empty its contents directly into the sample bag.
4. Repeat this procedure on at least 20 different bales.
5. Secure the bag and label it using the masking tape or a label with the following information:
 - your name, address and telephone number
 - date
 - type of hay
 - haystack location.

2. Discuss the procedure you used with classmates who sampled a different type of bale. What were the major differences in the two procedures?

3. Compare your combined sample to those collected by classmates. Which combined sample of hay looks better? Discuss your selection and reasons with classmate.

4. Clean and return the equipment, tools and supplies to their proper storage areas.

5. Using the following chart as a guide, evaluate your work.

Sampling Hay Bales	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Sampled the bale properly.				
Stored the sample properly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

ADDITIONAL PROCEDURE

The combined sample can be analyzed for payment of a fee. Your feed dealer or district agriculturalist will be able to tell you the cost of the analysis.

EQUIPMENT, TOOLS AND SUPPLIES

- Sample box (from your district agriculturalist)

1. Provide the fee, enclose it in the box with the sample bag of hay, and mail the box to the laboratory. (Your district agriculturalist will provide the address.)
2. When the results are received, complete the following chart.

Date	Type of Hay	Haystack Location	Moisture (%)	Estimated Digestible Energy (Mcal/kg)	Fibre (%)	Protein (%)	Calcium (%)	Phosphorus (%)

3. Take your chart to your feed dealer and discuss the quality of the feed sampled.

4. Based on your knowledge of feed stuffs and on the analysis, what are possible uses for the hay sampled?

JOB SHEET 26

SAMPLING FEED GRAIN FROM A BIN

EQUIPMENT, TOOLS AND SUPPLIES

- Grain sampling probe (can be borrowed from a local grain elevator)
- Pail (clean, dry 20 L)
- Sample boxes with plastic bags (can be picked up free from your local district agriculturalist)
- Grain Sample Description Sheets (can be picked up with the sample boxes at your district agriculturalist's office)
- Grain scoop shovel

PROCEDURE

1. Select a relatively full bin of barley, oats or wheat.

2. With your teacher's/supervisor's permission, inspect the bin from the outside.

Caution: Do not continue with this job sheet unless your teacher/supervisor is standing by with a grain scoop shovel. Never enter a bin that is showing signs of stress. Bulging sides or separating corners mean that the bin is unsafe to enter. Any movement or trampling of grain inside the bin may cause it to burst. Anyone inside a bin when it bursts may suffocate under a mountain of grain.

3. If you and your teacher/supervisor are satisfied that the bin is safe to enter, put the grain probe together by threading the handle sections onto one another.
4. Push the head of the probe into the grain.
5. Pull the probe out of the grain and empty the grain from the probe head into the 20-L pail.
6. Continue to probe 20 different locations. Each time, empty the probe's contents into the pail. Push the probe to different depths, and in all locations of the bin. This will result in a good, average sample.



7. Mix the grain in the pail with your hand.
8. Place the plastic bag in the cardboard sample box and fill the bag with grain.
9. Seal the bag with a twist tie.
10. Fill out the sample description sheet and put it in the box.
11. Label the box with your name, address and the sample number (from your completed sample description sheet).

ADDITIONAL PROCEDURE

If you want the analysis of the grain you have sampled, enclose a cheque to cover the cost of the analysis. Your district agriculturalist will tell you the cost of the lab analysis.

Then apply the correct postage and mail the sample to the lab. Your district agriculturalist will provide the address.

Complete the following chart when the analysis results are received.

SAMPLE NUMBER:

Sample Date	
Sample Description	
Bushel Weight	
Moisture Content	
Crude Protein Content	
Phosphorous Content	

12. Clean and return the equipment, tools and supplies to their proper storage areas.

13. Using the following chart as a guide, evaluate your work.

Sampling Feed Grain from a Bin	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Sampled the bin properly.				
Packaged the sample properly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				

DISCUSSION TOPICS

1. Did you have any difficulty getting a sample? If so, describe the difficulty. What would you do differently when taking another grain sample?

2. Are some bins easier to sample than others? If so, describe the features that make some bins easier to sample.



JOB SHEET 27

IDENTIFYING RUMINANTS AND NON-RUMINANTS

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Eraser

PROCEDURE

1. Research each of the animals on the following chart. Identify each as either a ruminant (R) or a non-ruminant(N).

ANIMAL	R or N
horse	
cow	
dog	
human	
deer	
pig	
goat	
sheep	
cat	
moose	
chicken	
mouse	

2. a. What foods do ruminants eat?

- b. What foods do non-ruminants eat?

3. What are the major characteristics of the digestive systems of:

- ruminants? _____

- non-ruminants? _____

4. Draw and label the digestive tracts of a ruminant and a non-ruminant in the following space.

5. Using the following chart as a guide, evaluate your work.

Identifying Ruminants and Non-ruminants	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Classified the animals correctly.				
Identified the correct digestive characteristics of each type of animal.				
Drew and labelled the two types of digestive tracts correctly.				

JOB SHEET 28

IDENTIFYING LIVESTOCK FEED

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Glass jars (3)
- Sample of whole barley
- Sample of rolled barley
- Sample of ground barley



PROCEDURE

1. Place a handful of each feed sample into a separate jar.
2. Examine each sample carefully.
3. Describe the appearance of each sample.

Sample	Appearance
Whole Barley	
Rolled Barley	
Ground Barley	

4. a. What equipment was used to prepare the ground grain and the rolled grain?
- b. What process is used with this equipment?
- c. Record the information on the following chart.

Sample	Equipment	Process
Ground Grain		
Rolled Grain		

5. a. To complete the following chart, you will need to find out what other grains are commonly fed to three different types of animals in your area.
- b. Identify if these types of animals are fed whole, rolled or ground grain.
- c. If one type of animal is fed two or more types of feed, list the animal beside each type of grain.

Type of Grain	Form	Fed to These Animals
	Whole	
	Rolled	
	Ground	
	Whole	
	Rolled	
	Ground	
	Whole	
	Rolled	
	Ground	

6. Compare your list with those prepared by several classmates.

7. Using the following chart as a guide, evaluate your work.

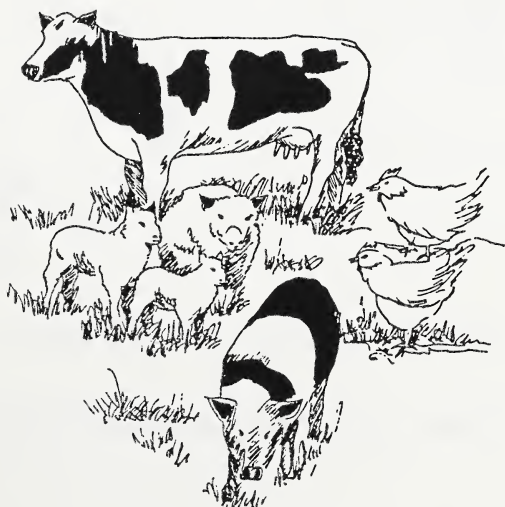
Identifying Livestock Feed	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Completed the charts accurately.				
Completed the information required.				

DISCUSSION TOPICS

1. a. What is/are the most widely used type(s) of grain? _____

b. What is/are the most widely used form(s) of grain? _____

c. Why are these types/forms the most widely used?



JOB SHEET 29

SAMPLING PASTURE QUALITY

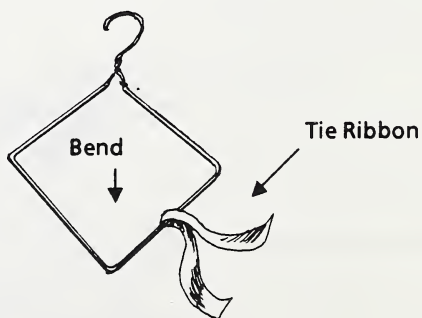
EQUIPMENT, TOOLS AND SUPPLIES

- Wire coat hanger
- Sharp, hand-operated grass shears
- Coloured tape or ribbon
- Plastic garbage bag with tie
- Freezer
- Picnic cooler (if required)

PROCEDURE

Note: This job sheet should be completed during a regular growing season when pasture quality is high.

1. Select an area of a pasture where the plants seem to be of average growth and quality for that field.
2. Bend the coat hanger downward at the bottom to form a near square wire frame.
3. Mark the coat hanger with the coloured tape or ribbon so that it can be found easily.



4. Toss the coat hanger backward, a short distance, over your shoulder.
5. Locate the coat hanger and, using the grass shears, clip all of the plants about 2 cm to 3 cm above the soil.

6. Place all of this plant material in the plastic bag.
7. While standing in the same location, repeat this procedure four times. However, each time, make a quarter turn before tossing the coat hanger.
8. Repeat steps 4, 5, 6 and 7 in five different locations of the pasture. By the end of this step you should have clipped 20 samples.
9. Using your hands, mix the plant material in the bag.
10. Keep the bag about half full. Discard the rest.
11. Seal the bag with the tie, and place it in a freezer for about 12 hours.
12. Compare the forage in your sample to the samples collected by classmates.
Note: If you need to transport the frozen sample a long distance, place it in a picnic cooler with ice.
13. a. Identify all the plants that you know in the sample.

b. Record the name of each plant identified.

14. a. Sketch plants that you cannot immediately identify.

b. Use a variety of resources to identify and label the plants you sketched.

15. Using the following chart as a guide, evaluate your work.

Sampling Pasture Quality	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Identified all plants.				

DISCUSSION TOPICS

1. Which plants in your sample could be poisonous to animals common in your district?

2. To which animals is your pasture best suited? Why?

3. What may be done to make the pasture you sampled better suited to one of the animals identified?

JOB SHEET 30

USING TATTOOING PLIERS

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Tattooing pliers
- Several tattooing letters or digits
- Tattoo ink
- Rubber gloves
- Corrugated cardboard
- Disinfectant
- Wide-mouthed jar or can
- Coveralls
- Newspaper



PROCEDURE

1. Visit a veterinarian or farmer who uses tattoos to identify livestock and discuss the process.
2. Identify farm animals that are commonly tattooed for identification purposes.
 -
 -
 -
 -
 -
3. For each identified animal, describe the location(s) (sometimes there is more than one) where a tattoo can be applied.

Animal	Tattoo Location(s)

4. What are the major items of equipment used to tattoo these animals?

-
-
-
-
-

5. What dangers are present when preparing to tattoo an animal? How does the veterinarian or farmer guard against them?

6. What safety equipment is used when handling animals for tattooing or tattoo inspection?

7. With your teacher's/supervisor's permission, inspect several tattoos. List three examples of animal identification tattoos.

8. Read the instructions for handling/using a pair of tattoo pliers.

9. Following the instructions, insert five digits or letters into the head of the pliers.

Note: Be sure that the impression will all be read right-side-up when applied.

10. Pour the disinfectant into the jar or can.

11. Disinfect the head of the pliers in the disinfectant solution.

Caution: Tattoo figures are very sharp. Disinfect injuries to yourself immediately and report them to your teacher/supervisor.

12. Place the piece of cardboard between the jaws of the pliers and squeeze the handles together firmly. Use both hands.
13. Release the pliers and inspect the pattern of holes that were punched into the cardboard. Write what you can read: _____
Note: If the tattoo is incorrect, correct the digits in the head of the tattoo pliers and try again.
14. Spread out the newspaper on your work area and put on the coveralls.
15. Put on the rubber gloves and, using your fingers, thoroughly rub a large drop of tattoo ink into the holes of the tattoo.
Note: Tattoo ink can stain very badly. Read the instructions on the container for removing spilled ink.
16. Practise until you have made a good tattoo.
Note: Over long periods, the excess tattoo ink on an animal's skin would wear off, leaving only the ink stains in the holes of the digits and letters.
17. Dispose of the contaminated disinfectant as directed by your teacher/supervisor.
18. Clean and return the equipment, tools and supplies to their proper storage areas.
19. Clean up the work area.

20. Using the following chart as a guide, evaluate your work.

Using Tattooing Pliers	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Recorded all the required information.				
Provided accurate information.				
Produced a legible tattoo.				
Handled the ink with care.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

DISCUSSION TOPICS

1. Why are animals tattooed?

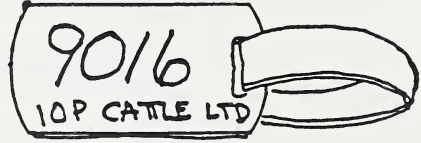
2. What other methods are used to identify the owners of animals? Describe them.

JOB SHEET 31

TAGGING EARS

EQUIPMENT, TOOLS AND SUPPLIES

- Small pail filled with warm soapy water
- Disinfectant solution
- Plastic ear tags (4 blank) with numbering buttons
- Ear tag applicator
- Ear tag marking pen (contrasting colour to tags)
- Cotton rag
- Ear tag ink remover
- Petroleum jelly
- Plastic garbage bag
- Newspaper



PROCEDURE

1. Make sure the ear tags are clean and dry. If there is any sign of an oily substance on the tags, wash them with warm, soapy water and then dry them.
2. Place equipment, tools and supplies on a piece of newspaper. (This will prevent ink stains from soiling your work area.)
3. Remove the cap from the marking pen. Pump the pen tip on the newspaper until the ink starts flowing.
4. With gentle pressure, write the following 4-digit sequences, one across each tag. Use large, evenly spaced digits.

9001

9215

9437

9607



5. Before the ink on each tag dries, wipe it off with a cloth dampened with ear tag ink remover.

6. Continue practising with 4-digit sequences until your numbers are large, evenly spaced and easily read.
7. When you are satisfied with your numbering, mount an ear tag button on the pin of the applicator.
Note: The point of the button should be at the sharp end of the needle.
8. Place the tab of the tag under the spring-loaded retainer opposite to the button point.
Note: Make sure that the flat side of the tab is facing the button point.
9. While holding the handles of the applicator, dip the applicator into the disinfectant.
10. Place the plastic bag between the jaws of the applicator and, using both hands, squeeze the handles firmly.
11. Pull the handles apart and remove the applicator from the ear tag.
12. Inspect the job you did. Make sure that the head of the button is holding the tag securely in place. Rotate the tag on the button and push them together to guarantee a good connection.
13. Practise with the other tags.
Note: If the plastic bag is tearing and sticking in the tab, you may lubricate the ear tag button point with petroleum jelly.
14. Clean and return the equipment, tools and supplies to their proper storage areas.
15. Clean up your work area.

16. Using the following chart as a guide, evaluate your work.

Tagging Ears	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Wrote numbers legibly.				
Installed the tags properly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

DISCUSSION TOPICS

Note: The numbers you practised with were 9001, 9215, 9437 and 9607. These numbers belong to a numbering system as follows:

90 ~~~~~	01 ~~~~~
the first 2 numbers indicate the year of birth	the last 2 numbers indicate the number of the calf

The number 9001 is, therefore, the number belonging to the first calf of 1990.

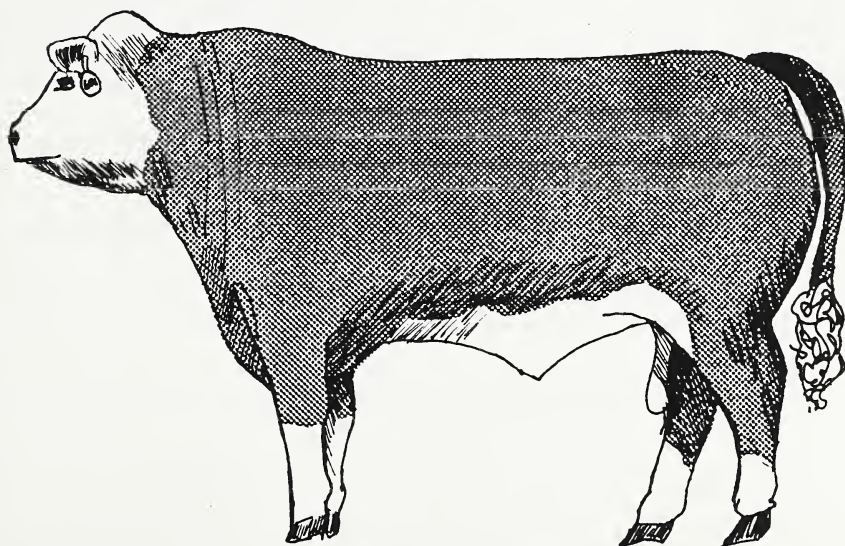
1. a. What would these numbered ear tags indicate?

Tag Number	Year of Birth	Calf Number
9215		
9437		
9607		

b. Compare your ear tag analysis with those done by classmates.

2. a. What other numbering systems are used by cattle farmers in your area?

- b. Discuss and record the advantages/disadvantages of each system.



JOB SHEET 32

OBSERVING BRANDING TECHNIQUES

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil

PROCEDURE

1. Visit a local cattle producer who uses a brand to identify cattle.
2. Identify, and sketch the producer's brand in the space below.
3. Mark the location of this cattle producer's brand on the appropriate drawing.

Right Side

Left Side

4. Which method of applying a brand does the producer use: Burning? Freeze branding? Liquid branding? (Underline the method used.)
5. Inspect the producer's work site.

6. Complete the following chart.

BRANDING METHOD: _____

Age or Size of Cattle	Equipment Needed	Number of People Needed	Usual Approximate Date of Branding

7. Using the following chart as a guide, evaluate your work.

Observing Branding Techniques	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Drew a legible and accurate brand drawing.				
Provided accurate and complete information.				

DISCUSSION TOPICS

1. What are the possible dangers connected with handling branding equipment?

2. a. What safety practices must be followed when handling livestock to be branded?

- b. What safety equipment is used in a typical branding operation?

JOB SHEET 33

IDENTIFYING ANIMAL HEALTH CARE PROCEDURES

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Animal production/care resources

PROCEDURE

1. Visit a library or other agricultural resource centre and research why and how each of the following procedures is used to protect the health of animals.
 - castration
 - grooming
 - dehorning
 - hoof trimming
 - parasite control
 - shearing
 - vaccination
 - drenching
2. Based on your research, match each of the above terms with one of the following descriptions.
 - a. Removing extra hoof growth to prevent injury to the animal or to improve the hoof's appearance. _____
 - b. Administering medication into the mouth or throat of an animal to treat a disease or condition. _____
 - c. Combing, washing, drying or cutting an animal's hair or feathers. _____
 - d. Removing the testicles of a male animal. _____
 - e. Removing all of an animal's hair, especially of sheep. _____
 - f. Treating an animal with a substance to prevent a disease. _____
 - g. Treating an animal to prevent or eliminate worms, lice or other parasites. _____
 - h. Removing an animal's horns. _____
3. Compare your matches with those of classmates. Check your matches with the resources used.
 - a. How many matches did you do correctly? _____.
 - b. Calculate the percentage of correct matches. _____%

JOB SHEET 34

DESCRIBING ANIMAL HEALTH CARE PROCEDURES

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Animal production/care resources

PROCEDURE

1. Choose four of the following animal health care procedures and plan to investigate them.
 - castration
 - dehorning
 - vaccination
 - clipping/grooming
 - shearing
 - hoof care
 - parasite control
 - drenching
2. Visit one or more local livestock producers, discuss the procedures you have chosen and complete a chart for each of the four procedures.

Procedure name:
Purpose:
Animals used on:
Steps in procedure: 1. 2. 3. 4. 5. 6. 7.

Procedure name:
Purpose:
Animals used on:
Steps in procedure:
1.
2.
3.
4.
5.
6.
7.

Procedure name:
Purpose:
Animals used on:
Steps in procedure:
1.
2.
3.
4.
5.
6.
7.

Procedure name:
Purpose:
Animals used on:
Steps in procedure:
1.
2.
3.
4.
5.
6.
7.

3. Share and discuss the information you collect with classmates.
4. Have your teacher/supervisor evaluate your work.

DISCUSSION TOPICS

1. a. Are the same animal health care procedures carried out on all animals? Why or why not?

- b. Are some animal health care procedures carried out on only one type of animal? Give examples.

2. Do all producers use the same equipment to carry out the same procedures on the same types of animals? Why or why not?

3. Do all producers use the same methods for completing animal health care procedures on the same types of animals? Why or why not?

JOB SHEET 35

GIVING SUBCUTANEOUS INJECTIONS TO FARM ANIMALS

EQUIPMENT, TOOLS AND SUPPLIES

- Rubbing alcohol
- Cotton balls
- Needle (disposable, 19 mm, 16-18 gauge)
- Syringe (disposable, 10 cc)
- Sterile water or sterile saline solution (a medicine vial of one of these can be purchased from a local veterinarian)

PROCEDURE

Note: Your teacher's/supervisor's permission must be obtained before starting this job.

1. Confine a cow, steer or heifer in a sturdy cattle squeeze.
2. Using an alcohol-soaked cotton ball as a sterilizer, wipe the rubber top of the medicine vial of sterile solution.
3. Attach a sterile needle to the syringe.
4. Draw 5 cc of air into the syringe. Turn the vial upside down, and inject the air into the solution.
5. Draw 5 cc of the sterile solution into the syringe.

Note: Examine the solution in the syringe for air bubbles. If you see any, hold the syringe with the needle pointing straight up and tap the syringe lightly. This will make the air rise to the top. Push the plunger in slightly to force the air out through the needle. Stop when the liquid starts to come out of the needle.

6. Pinch the animal's skin, at a place where there is extra skin, and pull it away from the animal's flesh (the side of the animal's neck is a suitable place to inject).

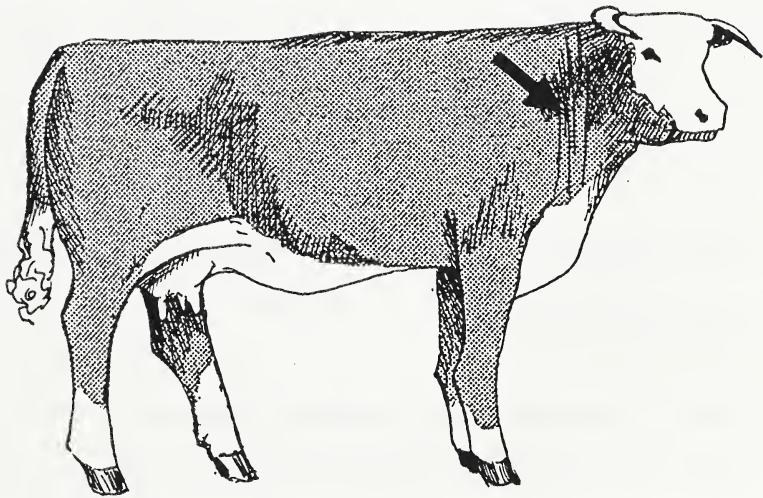
Caution: An animal under stress may act in an unpredictable way. Be sure the animal is secured and that you are able to escape the animal's fast movements.



Note: The needle must be kept sterile. Do not allow the needle to touch anything before it is used. If it should be contaminated, remove the needle from the syringe, dispose of it as directed and attach a new, sterile one.

7. Sterilize the injection site by rubbing an alcohol-soaked cotton ball on the skin area to be injected.
8. Push the needle all the way into the fold of the animal's skin while holding the skin between your fingers. The needle should not enter the animal's flesh.

Note: Subcutaneous means "under the skin". Be sure that is where you are injecting the solution.



Caution: Needles are sharp. It is therefore possible for you to injure your hand or fingers with them. If this should happen, disinfect the injury and report it to your teacher/supervisor immediately.

9. Using your thumb, push the plunger in all the way until the syringe is empty.

Note: Check that the syringe does not leak at the point where the needle is fastened. If the connection point leaks, contact your teacher/supervisor for advise.

10. Pull out the needle and massage the injection site briefly.
11. Dispose of the needle and syringe as directed by your teacher/supervisor.

12. Visit a local veterinarian or a local livestock producer and identify the names of six products that are commonly used in subcutaneous injections. List them and briefly describe the purpose of each product and the types of animals on which each may be used.

Product	Types of Animals	Purpose

13. Clean and return the equipment, tools and supplies to their proper storage areas.
14. Clean up the work area.
15. Using the following chart as a guide, evaluate your work.

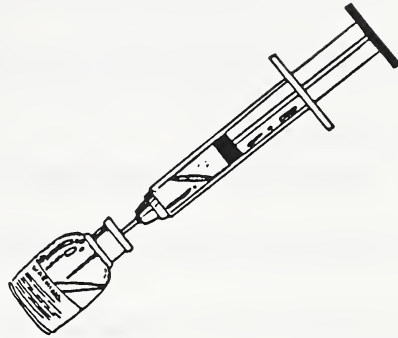
Giving Subcutaneous Injections to Farm Animals	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Injected the animal properly.				
Disposed of the needle and syringe properly.				
Identified and described the six products correctly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

JOB SHEET 36

PRACTISING INTRAMUSCULAR INJECTIONS

EQUIPMENT, TOOLS AND SUPPLIES

- Rubbing alcohol
- Cotton balls
- Needles (disposable 38 mm, 16- or 18-gauge)
- Syringe (disposable, 10 cc)
- Sterile water or sterile saline solution
- Large grapefruit
- Heavy leather gloves



PROCEDURE

1. Confine a cow, steer or heifer in a sturdy cattle squeeze.
2. Using an alcohol-soaked cotton ball as a sterilizer, wipe the rubber top of the medicine vial of sterile solution.
3. Attach a sterile needle onto the syringe.
4. Draw 5 cc of air into the syringe. Turn the vial upside down, and inject the air into the solution.
5. Draw 5 cc of the sterile solution into the syringe.

Note: Examine the solution in the syringe for air bubbles. If you see any, hold the syringe with the needle pointing straight up and tap the syringe lightly. This will make the air rise to the top. Push the plunger in slightly to force the air out through the needle. Stop when the liquid starts to come out of the needle.

6. Pull the needle out of the vial and inspect the syringe for air bubbles. If there is air in the syringe, point the needle upward and tap on the syringe. This will cause the air to rise toward the needle. Push the plunger upward slightly until liquid starts to come out of the needle.
7. Remove the needle from the end of the syringe. To prevent contamination, handle only the base of the needle. Hold the needle by the base while you continue.

Caution: Put the leather glove on your left hand to prevent you from accidentally injecting yourself.

8. Steady the grapefruit on a table with your left hand.
9. Sterilize the injection site with an alcohol-soaked cotton ball.



10. Holding the needle between your right thumb and forefinger, strike the grapefruit lightly with your right fist several times.

Note: If you are left handed, use your left thumb and forefinger.

11. Swiftly jab the needle all the way into the injection site. Leave the needle in the injection site.

12. Remove the glove.

Note: The needle is inserted separately to prevent loss of contents if the syringe breaks.

13. Hold the base of the embedded needle with your left hand and reconnect the syringe to it.

14. Push the plunger of the syringe all the way in to force the liquid into the grapefruit.

15. Pull out the needle and massage the injection site. (In an animal, this helps to distribute the injected liquid.)

16. Dispose of the needle, syringe and grapefruit properly when you are finished practising.

Caution: If at any time you injure yourself with the needle, disinfect the wound and report the injury to your teacher/supervisor.

17. Clean and return the equipment, tools and supplies to their proper storage areas.

18. Clean up the work area.

19. Using the following chart as a guide, evaluate your work.

Practising Intramuscular Injections	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in the procedure.				
Demonstrated all related safety procedures.				
Gave the injections properly.				
Disposed of the needle and syringe properly.				
Cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Cleaned up the work area.				

DISCUSSION TOPICS

1. If you were injecting a live animal, what are some problems that might make the task more difficult? How would you resolve those problems?

2. a. Why is sterilization and other hygiene practices important when giving injections?

- b. What methods of hygiene and sterilization are used before, during and after giving an injection?

JOB SHEET 37

OBSERVING INTRAMUSCULAR INJECTION TECHNIQUES

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil

PROCEDURE

1. Visit a local livestock producer who uses intramuscular (I.M.) injections as a part of the herd's health management procedure.
2. Observe the processes of handling and injecting the livestock with intramuscular medication. Discuss and record the reason, procedure, medication, dosage and injection site for two different types of animals.

Livestock	Type/Size	Reason for Administering I.M. Injection	Name of Medication Injected	Dosage for One Treatment (per head)	Sketch Animal and Show the Injection Site
e.g., <i>Cattle</i>	<i>cow/650 kg</i>	<i>Intrauterine infection</i>	<i>Penicillin G</i>	<i>30 cc</i>	

3. List the equipment used to perform I.M. injections.

-
-
-
-
-

4. Using the following chart as a guide, evaluate your work.

Observing Intramuscular Injection Techniques	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Completed all steps in the procedure.				
Completed the chart accurately.				
Correctly identified the equipment.				

DISCUSSION TOPICS

1. What safety precautions are taken when giving animals intramuscular injections?

2. What hygiene practices are used when giving animals intramuscular injections?

JOB SHEET 38

IDENTIFYING BUSINESSES RELATED TO ANIMAL PRODUCTION

EQUIPMENT, TOOLS OR SUPPLIES

- Local business directory; e.g., local Chamber of Commerce directory or Yellow Pages
- Pen or pencil

PROCEDURE

1. Check a local business directory and identify businesses related to animal production.
2. Record the name, type or nature of each business on the following chart.

Note: Name five different businesses for each of the four categories shown on the following chart. If your area directory does not list five, use the directory of a neighbouring area until five are found.

Example	Purchases Goods Grown by Animal Producers	Sells Goods Grown by Animal Producers	Provides Business Services to Animal Producers	Sells Business Goods to Animal Producers
Name of Business	<i>Prairie Rose Meats</i>	<i>Hopscotch Cafe</i>	<i>Davidson Clinic</i>	<i>Barclay's Supplies</i>
Type of Business	<i>Butcher Shop</i>	<i>Restaurant</i>	<i>Veterinary Clinic</i>	<i>Retail sales</i>
Nature of Business	<i>Prepares and sells meats</i>	<i>Prepares and sells food</i>	<i>Maintains/improves animal health</i>	<i>Stocks/sells livestock equipment</i>
Name of Business				
Type of Business				
Nature of Business				
Name of Business				
Type of Business				
Nature of Business				

Example	Purchases Goods Grown by Animal Producers	Sells Goods Grown by Animal Producers	Provides Business Services to Animal Producers	Sells Business Goods to Animal Producers
Name of Business				
Type of Business				
Nature of Business				
Name of Business				
Type of Business				
Nature of Business				
Name of Business				
Type of Business				
Nature of Business				

3. Have your teacher/supervisor evaluate this task according to the number of correct answers.



JOB SHEET 39

IDENTIFYING YOUR EATING HABITS

EQUIPMENT, TOOLS AND SUPPLIES

- Pen or pencil
- Calculator
- Kitchen food scale
- Measuring cup



PROCEDURE

1. Choose an ordinary week, when your eating habits will be normal.
2. Identify the animal products consumed by keeping a record of what you eat on the following chart. (Record the approximate amount of each animal product eaten at each meal.)

Note: Use the kitchen scale and/or measuring cup to find the approximate measure of each serving you would normally eat. Indicate the unit of measurement (e.g., g, mL, L) for each recorded item. Once you can fairly accurately estimate the contents of what you eat, you may not need to measure each item.

		Beef	Poultry	Pork	Fish	Eggs	Milk	Cheese	Processed Meats	Other Dairy Products
MONDAY:	Breakfast									
	Lunch									
	Supper									
	Other									
TUESDAY:	Breakfast									
	Lunch									
	Supper									
	Other									
WEDNESDAY:	Breakfast									
	Lunch									
	Supper									
	Other									

		Beef	Poultry	Pork	Fish	Eggs	Milk	Cheese	Processed Meats	Other Dairy Products
THURSDAY:	Breakfast									
	Lunch									
	Supper									
	Other									
FRIDAY:	Breakfast									
	Lunch									
	Supper									
	Other									
SATURDAY:	Breakfast									
	Lunch									
	Supper									
	Other									
SUNDAY:	Breakfast									
	Lunch									
	Supper									
	Other									

3. Calculate the total amounts of animal products eaten. Record the totals below and include the unit of measurement for each item.

	Total	Units of Measurement
Beef	_____	_____
Poultry	_____	_____
Pork	_____	_____
Fish	_____	_____
Eggs	_____	_____
Milk	_____	_____
Cheese	_____	_____
Processed Meats	_____	_____
Other Dairy Products	_____	_____

4. Which of the animal products listed are produced in your area?

5. Which three meats did you consume the most?

6. Using your chart as a guide, calculate the amount of milk you would drink over one year. Show your calculation.

7. Have your teacher/supervisor evaluate your work.

DISCUSSION TOPICS

1. Were there major changes in your eating patterns from day to day? What were the reasons for the changes?

2. Do most people have changes in their daily eating habits? Why or why not?

3. Is there one or more animals whose products you do not eat? If so, name the animal(s) and give your reason(s) for not including its(their) products in your diet.

JOB SHEET 40

CARING FOR AND FEEDING OF LIVESTOCK

Note: You and your teacher/supervisor will need to identify individual farm animals, or pen of farm animals, that can be cared for by you for five days.

EQUIPMENT, TOOLS AND SUPPLIES

- Pen
- Livestock

PROCEDURE

1. Observe your teacher/supervisor demonstrate the caring for and feeding of livestock.
2. a. Care for the livestock for five days or for the time prescribed by your teacher/supervisor.

b. Based on your observations, complete a copy of the "Daily Duty Record", on pages 131 to 133, for each type of livestock cared for and fed.

Note: Inform your teacher/supervisor if you feel there is a problem with the livestock, equipment, tools or supplies.

3. Using the following chart as a guide, evaluate your work.

Caring for and Feeding of Livestock	Excellent 4	Very Good 3	Good 2	Not Acceptable 1
Selected the proper equipment, tools and supplies.				
Completed all steps in each procedure.				
Demonstrated all related safety procedures.				
Maintained the livestock properly.				
Regularly cleaned and returned all equipment, tools and supplies to their proper storage areas.				
Maintained a clean work area.				

DISCUSSION TOPICS

1. How do record keeping procedures help keep track of the costs of feeding livestock?

2. Do the tasks involved in caring for and feeding of livestock differ much from day to day? If they do, explain why daily schedules may be different.

3. What does it cost to care for one animal for one week? Identify individual items and costs, and calculate the total cost.



DESCRIPTION OF LIVESTOCK _____ NAME _____
 NUMBER OF ANIMALS _____ DATE _____

Equipment, Tools and Supplies	Day 1		Day 2		Day 3		Day 4		Day 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Procedure										
1.										
2.										
3.										
4.										
5.										
6.										

DESCRIPTION OF LIVESTOCK _____ NAME _____
 NUMBER OF ANIMALS _____ DATE _____

Equipment, Tools and Supplies	Day 1		Day 2		Day 3		Day 4		Day 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Procedure										
1.										
2.										
3.										
4.										
5.										
6.										

DESCRIPTION OF LIVESTOCK _____

NAME _____

NUMBER OF ANIMALS _____

DATE _____

Equipment, Tools and Supplies	Day 1		Day 2		Day 3		Day 4		Day 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Procedure										
1.										
2.										
3.										
4.										
5.										
6.										



WORK STANDARDS AND MANAGEMENT

The major tasks of employees in any industry are to provide quality service and maintain positive relationships with clients and fellow employees. To achieve these goals, every supervisor expects certain standards to be met.

STUDENT ACTIVITIES

Below each of the following types of standards, list the behaviour that an employer expects from each employee.

PERSONAL STANDARDS

REGULATORY STANDARDS

MATERIALS-USE STANDARDS

INTERPERSONAL STANDARDS

Throughout the course, you will be evaluated on how well you are meeting different standards.

At the end of each month, make a copy of one or both of the following charts and evaluate your performance.

- Appendix 2: "Work Standards and Management Monthly Evaluation Chart".
- Appendix 3: "Self-evaluation Chart: Work Habits".

Check previous evaluations and note the improvements.

In addition to your self-evaluations, your teacher in school and supervisor in the workplace will evaluate your progress on the job. You may also be asked to evaluate the learning experience of each community partnership.

STUDENT ACTIVITIES

1. At the end of each community partnership:
 - a. Ask the employer or supervisor to evaluate your performance on the job. Give the employer or supervisor a copy of Appendix 4: "Community Partnership Evaluation Form (Community Partner)" and request that it be completed and returned to the school.
 - b. Complete a copy of Appendix 5: "Community Partnership Evaluation Form (Student)". Make copies of the completed form and give one to your teacher and another to your community partner.

AGRICULTURAL PRODUCTION 36 PROFILE

JOB SCOPE	1 Demonstrates ability to access job and career opportunities	2 Identifies opportunities for continuing education		
HISTORICAL DEVELOPMENT OF AGRICULTURE	1 Identifies the reasons for producing specific commodities			
THE FOOD CHAIN	1 Draws a food chain			
PRODUCERS AND CONSUMERS	1 Identifies local producers and consumers			
FACTORS OF PRODUCTION	1 Lists determinants of production in local operations: climate, soil, etc.			
FARM SAFETY	1 Demonstrates entry-level farm safety practices: machine, livestock, personal safety			
LAND	1 Analyzes soil: pH, organic matter, chemical composition	2 Describes organisms in soil: macro, micro	3 Demonstrates entry-level ability to operate two pieces of land care equipment	4 Demonstrates safe work practices
PLANT PRODUCTION	1 Identifies weed and pest control products	2 Performs basic maintenance on plant production, equipment and tools	3 Demonstrates safe work practices	

AGRICULTURAL PRODUCTION 36 PROFILE

LIVESTOCK PRODUCTION	1	Recognizes the basic principles of livestock nutrition	2	Identifies livestock digestive systems: ruminants, non-ruminants	3	Identifies feed and feeding practices	4	Recognizes animal identification systems: tattooing, branding, ear-tagging
	5	Identifies animal health practices: castration, dehorning, etc.	6	Identifies animal production-related industries	7	Identifies consumer buying practices of animal-related products	8	Tends farm animals
	9	Demonstrates safe work practices	10	Evaluates own completed work				
WORK STANDARDS	1	Demonstrates entry-level work standards	2	Maintains records	3	Evaluates own performance		
	1	Demonstrates supply management	2	Evaluates own performance				
SUPPLIES MANAGEMENT	1	Demonstrates supply management	2	Evaluates own performance				
	1	Identifies production goals	2	Works with others to achieve production goals	3	Evaluates own and team's performance	4	Maintains a safe, clean work area
WORK AREA MANAGEMENT	1	Identifies production goals	2	Works with others to achieve production goals	3	Evaluates own and team's performance	4	Maintains a safe, clean work area

WORK STANDARDS AND MANAGEMENT MONTHLY EVALUATION CHART

Name _____ Date _____	Evaluation	
	Satisfactory	Unsatisfactory
DEMONSTRATES APPROPRIATE WORK HABITS		
Is punctual		
Comes prepared to work		
Prepares immediately for work		
Performs duties as instructed, with acceptable accuracy		
Uses time productively		
Considers solutions to problems before asking for assistance		
FOLLOWS RULES AND REGULATIONS		
Follows acceptable safety and sanitation procedures		
Does not bring food or drink into the work area		
Dresses appropriately		
Uses equipment, tools and supplies as instructed		
Clears work area after use		
Performs required clean-up duties		
DEMONSTRATES CONCERN FOR SAFETY		
Demonstrates safety practices		
Maintains a safe and sanitary work area		
Wipes up spills immediately		
Does not leave work area without permission		
DEMONSTRATES PROFESSIONAL ATTITUDE		
Displays a professional appearance		
Is friendly and courteous		
Advises teacher/supervisor of hazards or necessary repairs		
Informs teacher/supervisor in advance of necessary absences		
Demonstrates responsibility for completion of assignments and tasks		
Follows verbal and written instructions		
Demonstrates an organized work approach		

Areas to improve next month are:

SELF-EVALUATION CHART: WORK HABITS

Name: _____ Date: _____ Course: _____

Time Management	EVALUATION		
	Excellent	→	Poor
	1	2	3
Arrives on time			
Brings all necessary equipment to class			
Prepares immediately for work			
Performs duties without being asked			
Uses extra time to complete unfinished work			
Considers solutions to problems before asking for assistance			
Completes work on time			
Task Management			
Uses equipment and implements as instructed			
Cleans work area after use			
Performs daily clean-up duties			
Follows lab/class rules and regulations			
Personal Management			
Is well groomed			
Wears clothing appropriate to the task			
Maintains accepted standards of personal and public hygiene			
Safety			
Takes all necessary safety precautions			
Uses appropriate safety devices (clothing, shields, guards, etc.)			

Best Score: 45

Score Attained:

COMMUNITY PARTNERSHIP EVALUATION FORM

(Community Partner)

STUDENT _____				
COMMUNITY PARTNER _____			Period of Partnership From _____ to _____	
TYPE OF BUSINESS _____			PERFORMANCE LEVEL	
			High	Med
			Low	N.A.
1. <u>Career Awareness</u> a. Appreciates the nature of the industry/business b. Identifies variety of jobs/careers in occupational cluster c. Appreciates the need for job search skills d. Appreciates the job requirements e. Dresses appropriately for the job				
2. <u>Human Relations</u> a. Maintains good relations b. Communicates effectively c. Practises ethical behaviour d. Demonstrates dependability e. Demonstrates interest in area f. Adheres to work standards g. Displays a positive attitude h. Respects the opinions and property of others				
3. <u>Core Skills</u> a. Follows instructions/directions b. Completes necessary forms c. Uses metric/imperial measures d. Demonstrates entry-level math functions e. Demonstrates entry-level tools and equipment competencies f. Demonstrates entry-level ability to handle supplies				
4. <u>Work Skills</u> a. Demonstrates appropriate competencies b. Demonstrates pride in work c. Demonstrates entry-level sanitation practices d. Demonstrates entry-level safety practices e. Shows initiative f. Shows creative ability g. Practises effective time management				
5. <u>Entrepreneurship</u> a. Recognizes possible self-employment opportunities				
6. Other Comments				
Teacher: _____ Student: _____			Community Partner: _____	

COMMUNITY PARTNERSHIP EVALUATION FORM

(Student)

1. Do you feel that this experience:

a. has been of benefit to you?

Yes ____

No ____

How? _____

Why not? _____

b. has helped to prepare you for the world of work?

Yes ____

No ____

How? _____

Why not? _____

c. has expanded your learning opportunities?

Yes ____

No ____

How? _____

Why not? _____

2. What difficulties arose?

3. What strengths/abilities did you discover in yourself as a result of this experience?

4. Do you have any suggestions for improving this program?

Placement Location _____ Date _____

Employer/Supervisor _____ Student _____

(signature)

(signature)

JOB SHEET EVALUATION RECORD

JOB SHEET	EVALUATION								
	Self			Peer			Teacher/Supervisor		
	1	2	3	1	2	3	1	2	3
1. Identifying Job Requirements									
2. Preparing a Résumé									
3. Composing a Letter of Application									
4. Completing a Job Application Form									
5. Preparing for and Participating in a Job Interview									
6. Drawing a Food Chain Flow Chart									
7. Identifying Local Producers and Consumers in a Food Chain									
8. Measuring the Heat Absorption of Different Soils									
9. Locating Markets for Farm Products									
10. Recording Temperature and Rainfall									
11. Travelling Safely with Farm Machinery									
12. Identifying Farm Safety Clothing and Equipment									
13. Collecting Soil Samples									
14. Testing Soil Samples for pH Value									
15. Identifying Organisms in the Soil									
16. Building a Soil Macro-organism Collector									

JOB SHEET	EVALUATION								
	Self			Peer			Teacher/Supervisor		
	1	2	3	1	2	3	1	2	3
17. Identifying Soil Macro-organisms									
18. Collecting Soil Macro-organisms									
19. Operating a Farm Tractor									
20. Operating a Tractor and a Set of Harrows									
21. Operating a Baler									
22. Identifying Dangerous Chemicals									
23. Maintaining a Combine									
24. Dressing to Prevent Chemical Poisoning									
25. Sampling Hay Bales									
26. Sampling Feed Grain from a Bin									
27. Identifying Ruminants and Non-ruminants									
28. Identifying Livestock Feed									
29. Sampling Pasture Quality									
30. Using Tattooing Pliers									
31. Tagging Ears									
32. Observing Branding Techniques									
33. Identifying Animal Health Care Procedures									

JOB SHEET	EVALUATION								
	Self			Peer			Teacher/Supervisor		
	1	2	3	1	2	3	1	2	3
34. Describing Animal Health Care Procedures									
35. Giving Subcutaneous Injections to Farm Animals									
36. Practising Intramuscular Injections									
37. Observing Intramuscular Injection Techniques									
38. Identifying Businesses Related to Animal Production									
39. Identifying Your Eating Habits									
40. Caring for and Feeding of Livestock									

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Alberta Career Development and Employment for the materials adapted from *The Easy-to-Read Career Planning Guide*, 1986.

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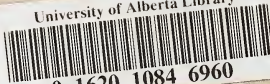
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